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ORIGINAL ARTICLES

IDEALS IN THE TREATMENT OF DIABETES AND METHODS FOR THEIR REALIZATION*

BY ELLIOTT P. JOSLIN, M.D.†

PRACTICAL diabetic ideals do not yet include the cure of the disease. When, however, a diabetic patient under treatment for 17 years knows no one among his friends who is as old, 79 years, and also as well as himself, a diabetic ideal has been attained (Case No. 341). When a girl has survived diabetes a decade and has become a successful and attractive Junior in a leading college at the age of 20 years, that girl has established an ideal for other children to follow (Case No. 1469). When a diabetic, 51 years old, nine years after the discovery of the disease, has active bilateral pulmonary tuberculosis with positive sputum and in the course of a year gains 20 pounds in weight, becomes sputum free and raises his tolerance for carbohydrates 100 grams and in so doing uses but 24 units of insulin a day, I feel he has demonstrated with diet and a little insulin sufficient regenerative capacity both generally and pancreatically to stamp him as an ideal result (Case No. 5738). When a minister's wife with seven children, at 46 years of age, has a blood sugar of 0.40 per cent. and a glycosuria of 4.8 per cent. and five months later is sugar free with a tolerance for carbohydrate 250 grams, protein 75 grams and fat 100 grams, with five units of insulin once a day, I consider that she is evidence of the patient work of scientists in laboratories, clinics and homes, who have demonstrated that diabetes attacks a part but not the whole pancreas, that a little undernutrition is a fundamental aid in treatment, that restriction of fat promotes tolerance for carbohydrates, that even a few units of insulin are advantageous and that a diabetic discovered early and not damaged with a low-carbohydrate high-fat diet is an ideal subject for treatment (Case No. 6213). Finally, when Case No. 3137, who, since her diabetes began four and a half years ago at the age of 45 years, has successfully withstood typhoid fever, an operation for gall stones and diabetic coma, each on a different occasion, appeared in my office last week sugar free, I felt warranted in reassuring other diabetics, and especially so because this patient, after taking insulin 4.5 years, has lived without it for 9 weeks.

Statisticians, nevertheless, keep reporting that diabetics are dying about as numerously as ever and I fear are inclined to brush away such examples as those just cited as of trifling value and merely exceptions. But I say what can be done for 5 patients can be done for 5,000. And this your own patients are proving. The published results of treatment of groups of diabetics in New York, California, Boston, Vienna and many other places, based upon fresh data show that diabetics are living, have ceased to die of their disease, and save in isolated instances, succumb to complications or intercurrent illnesses. To be specific, during the 12 months ending July 1, 1927, of the 1241 diabetics treated and traced among my 1329 seen that year the total mortality was 3.5 per cent. Even if the mortality among the 88 untraced cases was 2 or 3 times as large as that of the aggregate, it would not materially affect the result. Furthermore, although 43 cases died, there was not a single death due to diabetic coma. I cannot help believing this a diabetic ideal reached and it is mentioned because the results of other clinics are not dissimilar to my own. Indeed, for the entire State of Massachusetts during 1925, the ratio of the mortality from diabetes among those under 20 years of age to the total diabetic mortality reached its lowest level in 25 years.

The growing number of living diabetics is proof that treatment has improved. Instead of half a million to a million there must be a million to a million and a half of diabetics in the country today. There are many more than formerly, first, because they live so much longer. My own data have changed from an average duration of 4.8 years prior to 1914 to 7.7 years ending July, 1926. For Jews, since the discovery of insulin, it is 10 years, the highest duration attained by any of my groups thus far. It will take years to determine whether the number of fresh cases of diabetes is actually in-

*Read before the New York County Medical Society, Academy of Medicine, Monday, January 23, 1928.

†For record and address of author see "This Week's Issue," page 417.

creasing apart from the increment of increase due to better medical diagnosis. In a second, but indirect way, the increase in the number of diabetics is shown by their advancing average age at death. Prior to 1914 this was 44.8 years for my patients, but for the four years since the discovery of insulin it has risen to 55 years and for the year ending July 1, 1927, the average age at death of my diabetics was 60 years. The Metropolitan Life Insurance Company is proud, and justly so, that the average expectation of life of their group policy holders has risen 9 years in the course of the last 16 years but the age at death of the diabetics has advanced 16 years in a shorter period of time. The Metropoitan Life Insurance Company deals with the individuals who are presumably healthy at the beginning of their enrollment; my patients at the beginning of enrollment have all been handicapped with diabetes. The reason for the diabetic advance in age at death is largely because diabetic children have ceased to die. Thus there were but two deaths among 235 children in the year cited. Frankly, he is a pretty healthy man today who can live as long as a diabetic.

Coma disappeared from the mortality tables of the 1200 cases seen and traced last year and the two deaths among the 235 children were due to disease of the mastoid and pneumonia. A death from coma is a needless death we all felt even before the discovery of insulin. Last year saw this ideal attained and on a wholesale scale. No such good fortune this year. One diabetic patient took up Christian Science and *contrary* to the Christian Science Healer's advice—mark that sign of progress—gave up insulin and died in four days. Another instance was a boy whom I had not seen for one year and a half, for whom in the interim his mother had taken out life insurance. The treatment of his doctor can be summed up in the words—*requiescat in pace*. These cases furnish morals for Christian Scientists and Insurance Companies. To the former I would say if you want to treat a diabetic with Christian Science long, don't let his insulin run short; to the latter, when a report of a death by diabetic coma comes in, investigate it, prevent another; publish your conclusions, and it might be well to put them on the radio. (When I talked over the radio and told a New England audience to wash their feet before they said their prayers, the news spread and I have seen less dirty diabetic feet since.) Coma is the result of carelessness. The patients who develop it have failed to keep in touch with their family physician. No diabetic specialist can ever replace that man.

With coma conquered through continued observation and insulin, one is left to deal with arteriosclerosis. Of 609 diabetic deaths since my use of insulin, 47 per cent. have died of disease of the arteries of the lower extremities, heart, brain or kidneys. The fatal diabetic of five or more years' duration, whether old or young, thus far has proved at autopsy to be an arteriosclerotic and in 90 per cent. of the living diabetics of 10 or more years' duration the calcification of the arteries can be seen by X-ray. (L. B. Morrison.) One-fourth of all the diabetic deaths in Boston over a long period of years was due to lesions of the feet, presumably starting upon an arteriosclerotic basis. (Hyman Morrison.) Arteriosclerosis today in diabetes stares us in the face and we must attack it from all angles.

The prevention of arteriosclerosis and of the development of premature old age among diabetics is favored first of all by the reduction of weight toward a normal level just as is advised for any individual who does not have diabetes. No one urges any patient predisposed to heart disease or to hardening of the arteries to gain weight. About the chief weapon in treatment which cardiologists have for such cases is the gradual reduction of weight, and how much more this holds for diabetics than for the ordinary individual! One of the criticisms which I have against the high carbohydrate diet in the treatment of diabetes, as advocated by Sansum and others, is the undue gain of weight which has resulted so often in their patients from the use of too much food. A diabetic should never be allowed to exceed the weight which is considered proper for the ordinary individual.

The avoidance of a high fat and low carbohydrate diet by patients during a considerable term of years is another preventive influence upon the development of arteriosclerosis. Bowen, in Buffalo, noticed this in one of my patients and recorded that this 10 year diabetic who had lived upon 100 grams of carbohydrate was the only one in a series examined who failed to show calcification of the arteries by X-ray. I am inclined to believe that the daily metabolism of 100 grams or more of carbohydrate in the body will prevent the premature development of arteriosclerosis partly because of the carbohydrate itself, but also very likely because it reduces the large quantity of fat required for metabolic needs. Metabolism goes on more smoothly, as Krogh showed years ago, when exclusive diets, be they carbohydrate or fat, are avoided. I suspect that the development of arteriosclerosis in our diabetics has been caused largely because the carbohydrate in the diet was lowered and the fat increased out of all proportion. Prior to weight diets this resulted in coma, but with undernutrition and insulin, patients avoid coma and live long enough to show the more subtle effect of the high fat diet, namely atheromatosis.

Body fat is mechanically harmful irrespective of its source and it may also be chemically harmful whether it originates from undue quantities of fat in the diet or under-quantities of carbohydrate. Whether any special fat leads to pre-

mature arteriosclerosis we cannot say. Various writers have pointed out in animals the quick deposition of cholesterol in the arteries when cholesterol is given. An egg contains approximately 0.40 of a gram of cholesterol and the total cholesterol in the body of an adult is about 50 grams, 0.7 grams per kilogram body weight. One of my patients long since dead ate 10 eggs for breakfast. All recognize that cholesterol is metabolized with difficulty. It is a question whether a diabetic over 50 years of age should take more than one dose of cholesterol a day.

So many of my patients in years gone by have been dosed with and succumbed to an excess of fat in the diet that my attention was attracted to a similar result in a beautifully reported case in the current number of the *American Journal of Medical Sciences*. The patient was a mild diabetic, a familial diabetic, and a gall stone diabetic, the types which in my experience are the most benign. For 13 years this mild diabetic, with onset at the age of 45 years, was conscientiously treated and studied, but throughout most of the period lived on a diet low in carbohydrate with an excess of fat, and his weight rose in the 5 years before his death from 97½ pounds to 174 pounds. Finally in coma insulin seemed almost ineffective. I abstract the following from the protocol of the autopsy:

"Equally interesting as the findings in the pancreas were those in the blood vessels, particularly those of the base of the brain. The vertebral arteries contained large golden yellow nodules. The arteries of the circle of Willis were beaded and firm and resembled the usual severe arteriosclerosis except for the bright yellow color.

Sections from the vertebral, basilar and internal carotid arteries showed marked fatty infiltration. The lumina of some of the vessels were narrowed by the thickened intima, and the large fatty cells beneath it. The media of some of the vessels were almost completely replaced by calcium and fat. The aorta showed marked fatty changes beneath the intima, and irregular thickening, by fibrosis, of the intima. In places the media was encroached upon by fat-laden cells, and small amounts of calcium were present between intima and media.

In a section of the femoral artery the arteriosclerosis corresponded to the peripheral arteriosclerosis known as the Mönckeberg type. Chemical analyses of the bright yellow portions of the vessels suggested the presence of vegetable lipochromes in that they had high cholesterol contents.

The heart weighed 420 gm. There was thickening and fatty degeneration of the aortic leaflets of the mitral valve and sinuses of Valsalva. There were some atheromatous plaques in the pulmonary artery and an increase in epicardial fat. The coronary orifices were patent, but the arteries were markedly sclerosed.

A section of the coronary artery showed moderate intimal thickening and marked fatty infiltration beneath the intima. Many large fat-laden cells were present, partly encroaching upon the media of the vessel".

This patient did not live in vain. He becomes one of Woodyatt's so-called "pedigreed diabetics" and as celebrated as his own cases and "Bessie B". With this portrayal before us I doubt if ever again anyone will expose a diabetic to a low-carbohydrate high-fat diet for so long a period. Without such treatment as this patient received, in the decade before the discovery of insulin, undoubtedly he would have died, but who of us believe with the evidence now available that if in the earlier years when the diet was restricted in carbohydrate, moderate undernutrition had been continued and obesity avoided, such excessive arteriosclerosis would have developed? The body of this patient seems literally to have been steeped in fat. It is from an excess of fat in the tissues, I believe diabetes most commonly begins and from an excess of fat in the tissues or diet, diabetics, whether human or canine, died formerly of coma, but today, at least so far as humans are concerned, of premature arteriosclerosis.

As for the ineffectiveness of insulin in this patient, I would point out that he had edema, a complication rather unusual in diabetic coma. As a rule this is a favorable sign in a pre-coma case, but insulin has changed our opinion of edema. Insulin works most effectively in the dry patient, less effectively in the wet. Thus in my patient desiccated by diarrhoea one half a unit of insulin caused hypoglycemia, while in this edematous coma patient 100 units of insulin availed little. So much for the unusual work of insulin in this case. To this uncommon edema the excessive quantity of stored cholesterol may have contributed, because cholesterol more than lecithin always holds back water in the body.

There is a study now being made in the laboratories of the New England Deaconess Hospital on the fat partition of the plasma of insulin-treated diabetics. This study is designed to determine whether or not cholesterol values can still be considered an index of variations in fat metabolism. In 100 patients presenting no marked abnormalities of the disease such as coma, the average value for cholesterol was found to be 230 mgs. per 100 c.c., the average value of fatty acids was 432 mgs. per 100 c.c. In all instances there seemed to be a parallel relation existing between these two values. We are not in a position to report the lecithin values yet, but these values may not change our views about the parallelism existing between the different fat fractions.

You will notice that the average cholesterol value found is identical with the normal aver-

age value reported by Bloor in 1917. This is quite in line with the values found in the cholesterol investigation made last year. In 116 cases studied at that time the average value for cholesterol was found to be 257 mgs. Bloor has given 230 as the average for normals and 290 as the average for diabetics. Gray found 72 per cent. of our diabetics whom he studied to have cholesterol values above normals. In our study last year it is encouraging to report that Miss Hunt and her co-workers found that only 40 per cent. of our cases were above Bloor's normal figures and 60 per cent. were normal or below.

In the list of cases with diabetic ideals attained I hope you noticed the building up of considerable carbohydrate tolerances in diabetics with a few units of insulin. In the patient with tuberculosis the tolerance rose to 180 grams with 24 units and in the other patient to 250 grams with five units. This latter patient is mild I allow, because she was middle aged and of normal weight, although the urine contained 4.8 per cent. sugar and the blood sugar was 0.40 per cent. To be sure Petrén would have called her *ipso facto* a severe diabetic, but a mere elevation of blood sugar does not imply severity. It simply means a case untreated and I would infinitely rather have such a patient come for care with a glycemia of 0.40 per cent. than a patient who had been exposed to the baneful influence of a low-carbohydrate high-fat diet with a blood sugar half as great.

These patients represent what can be accomplished with simple dietetic treatment and a *little* insulin, and the secret may be that they are not overnourished at the start and a little time is given the pancreas to regain its impaired function. The same condition is attained by giving large quantities of carbohydrate, with a little fat, along with 100 or 200 units of insulin; but I cannot reconcile myself to the wisdom of giving a diabetic, whose disease is loss of power to assimilate carbohydrate, a large quantity of carbohydrate even though one can protect the patient with heroic medication. I know many such patients do wonderfully well, but I question whether they are on as safe and sane a basis as those who gain tolerance through the development, perhaps regeneration, of their own pancreas.

It is fortunate that we all do not treat diabetics alike. Time alone will show the best methods. However, again I would urge that anyone who adopts such radical changes from the orthodox method of treatment of diabetes which has come down to us from the ages should keep his patient under close supervision and in the closest touch with those who are carrying out these innovations on a large scale. For the average physician I believe it is safer to try with diet and insulin to build up a tolerance for carbohydrate of 100 grams, with a moderate number of units and later, if possible, increase the carbohydrate and decrease the insulin, rather than to use large doses of insulin. From personal experience, and that of some of my friends (see also Preisel and Wagner), some of the patients who have taken very high carbohydrate diets and large doses of insulin have been subject to hypoglycemic attacks frequently and in more than one instance the patient has voluntarily changed back to a more conservative diet. I suspect that proponents of these diets will reply that it is because of those patients I have treated by old-fashioned methods that they have been led to the new. All this is immaterial if we remember that the treated diabetic lives, but the neglected diabetic dies.

Every diabetic child should be a boy or girl scout. Our diabetic children are living, not dying, although it is hard for us doctors to comprehend this fact. What the diabetic child needs today is something more than insulin and diet and that is exercise, but most of all morâle. Unless you can develop morâle in a diabetic child his future is in trepidation. Therefore, I feel that the one practical diabetic ideal which can and should be attained this year is to turn our diabetic children into scouts and send them off to children's diabetic camps. Last year this was tried with a group of my diabetic girls and the plan was so successful that the mother of one of the girls volunteered to leave her own house this summer and place it at my disposal for another girls' camp. I believe that every diabetic clinic in every city should make some arrangements to provide a diabetic camp for their diabetic children, not only for what is gained thereby during the summer but because of the perpetuation of its influence throughout the year. You cannot realize how happy these children were to live together and to have no one of their companions say to them, "You are a diabetic". They swam, hiked, and cooked their own meals. They had a good time and yet adhered to their diet. They realized they were doing what their friends were doing elsewhere. Eventually they will learn from contact with other diabetics how to carry on all these relations in association with non-diabetics, but until they have had the disease a good many years they must be protected. If a child cannot go to a diabetic camp, let him learn from association with a Counsellor all the ideals of a camp.

PRIMARY ADENOCARCINOMA OF THE DUODENUM

Report of Twelve Proved Cases. Summary of Literature

BY JOHN W. DEWIS, M.D., AND GEORGE W. MORSE, M.D., F.A.C.S.*

TEN per cent. of all cancers appear in the large and small bowel; more than thirty per cent. of all cancers occur in the stomach: nearly half of all carcinomata are found in the gastro-intestinal tract. This is a rough estimate. It is difficult to make exact statements because cancer statistics are drawn from many sources and sometimes from duplicate records. No evidence has been found to explain why cancer so often ravages the stomach and large bowel, but seldom invades the small intestine, the primitive gut. It is strange that this enemy so frequently attacks but rarely breaks through the pyloric and ileocecal gates.

THE COMPARATIVE OCCURRENCE, LOCATIONS, AND AGE INCIDENCE

Eusterman, Berkman, and Swan[1] estimate that only three per cent. of the intestinal cancers are found in the small bowel. Brill[2], after a study of the literature of primary intestinal carcinoma up to 1904, computed that this disease was present in the duodenum in 0.3% of all carcinomata found in the bowel. This means that one primary cancer of the duodenum is found among every 300 to 400 cases of cancer from all parts of the bowel. Brill further quotes the older writers (2, pp. 826-829) to show that the duodenum and the rest of the small intestine are about equally affected, that "one is as infrequent as the other and that both are rare; that carcinoma of the jejunum is practically unknown." There is now sufficient proof that cancer may develop in any part of the small bowel, and the Mayo Clinic, since its foundation, as stated in the report of 1925[1], has dealt with 15 cases of primary carcinoma of the jejunum, 9 of the ileum, and 15 of the duodenum. Jefferson[3] aptly states, what is doubtless true, that "inch for inch the duodenum is more likely to undergo carcinomatous change than the jejunum or ileum," and this expression is repeated by later writers. Deaver and Radvin[4], in their report of a case and review of the subject of primary cancer of the duodenum, state "that the relative proportion between carcinoma of the duodenum and that of the jejunum and ileum is 47.7% to 52.2%."

These writers[4] have noted that 66% of cancers of the duodenum appear in the second portion, while only 22% are found in the first part, and 12% in the terminal part. In the series of the Mayo Clinic[1], there were 6 cancers in each of the first two portions of the duodenum, and 3 in the third portion. The location incidence of the growth in the group of cases which we publish here—the first time they have been cited—falls in this order: 5 in the *first* portion; 5 in the *second* (ampullary) portion; and 2 in the *third* portion. Our cases, taken from various sources, nearly duplicate the location sequence of the series from the Mayo Clinic. We imagine that the ocasional difficulty in differentiating advanced cancer of the ampulla of Vater from primary duodenal cancer is responsible, in some degree, for the reported higher percentages of incidence in the second portion. On the other hand, cancers of the ampulla, as observed by Doctor Oscar Richardson[5], "are small and confined usually to that region," and we would not expect them to show so complicated a structure as those of the duodenum.

More duodenal cancers have been found in men than in women. A small percentage have appeared in people under 40 years of age; the majority of them have occurred between the ages of 50 and 60. The reports of Perry and Shaw[6] contain these limits of age: the youngest 37, the oldest 80. In the valuable case-report of Cabot[5], the age was 79. In Morgagni's[7] case, the age was 33. In the series that we publish, the youngest (case No. 5) was 23.† Cancers of the lower bowel, on the contrary, have been found at all ages.

NORMAL AND PATHOLOGIC HISTOLOGY AND TERMINOLOGY

Chomel[8], in 1852, when reporting a cancer of the third portion of the duodenum, observes that duodenal cancers are usually similar to those of the pylorus. This is a statement now frequently made by pathologists, and we should expect this to be so, because the cylindrical epithelial cells, arranged in a single layer on a basement membrane, are apparently alike in the secreting glands of the pylorus and duodenum. The structure of the glands of the pylorus and of Brunner's glands is the same. There is this variation in distribution, however, in that the cells, which form the glands of Brunner in the duodenum, lie beneath the muscularis mucosae. Brunner's glands begin immediately below the pyloric ring and are found throughout the duodenum,—they are numerous in the first portion and plentiful around the papilla of Vater, from which point

*For records and addresses of authors see "This Week's Issue," page 417.

†Sands, in 1857, reported an ulcerated cancer of the duodenum, and Reynolds, in 1858, reported a cancerous tumor of the duodenum, both in boys 18 years of age. Sands, however, gave no histological report, and Reynolds appears not sure of his diagnosis.

Sands: Ulcerated Cancer of the Duodenum. Nov. 25, 1857. Trans. of the N. Y. Path. Soc., 1876. Vol. I, p. 265.

Reynolds: Cancerous Tumor of the Duodenum 1858. Trans. of the N. Y. Path. Soc., 1876. Vol. I, p. 266.

downward they decrease in number and disappear before reaching the duodeno-jejunal junction.* The lining of the duodenum, and of the entire intestinal tract, is formed of columnar—cylindrical—epithelial cells, except that by the excessive secretion of mucus, columnar cells may be transformed into goblet cells.

Primary cancers of the duodenum are cylindrical cell carcinomas growing from the mucosa or from Brunner's glands, and the cells of these new growths are generally arranged in such a way as to resemble the parent tissue. Some pathologists call these new growths destructive or malignant adenomata. Orth[9] assumed that duodenal cancers had their origin in Brunner's glands, but Weecke[10] contended against this idea. Some writers have suggested an origin from aberrant pancreatic tissue, and it may be difficult to differentiate some of the duodenal cancers from primary cancers of the pancreas. Evidences of a malignant growth are that the glands of the mucous membrane show irregular branchings and distentions of their ducts, and, particularly, that the gland cells appear beyond the membrana propria, and are found in the connective tissue below the mucous membrane. Bundles of these cells—some of them altered in shape—work into the deeper layers and are often so grouped as to imitate the glandular structure. Such a growth is called adenocarcinoma, or cancer. Also, *adenomata which are not malignant occur in the duodenum and other parts of the bowel,* and usually cause no symptoms. *These tumors grow by spreading out laterally or extending into the lumen of the bowel. If the adenomatous mass infiltrates or invades the surrounding tissue, it is a carcinoma.* We have found three forms of adenocarcinoma of the duodenum defined in writings on this subject: *scirrhous* cancer when the stroma of the growth becomes predominant and the mass is hard and fibrous, and contains few nests of cylindrical cells; *medullary* cancer when there are more cylinder cells than stroma, and the tumor is soft, and gray or red, and early ulcerates,—it is most malignant and metastases occur early; *colloid* or gelatinous cancer when the cells, in great degree, have undergone mucoid degeneration.† We have tried to have these statements conform, in a general way, to the opinions of Mallory[11], Ewing[12], MacCallum[13], Schmaus and Ewing[14], Ribbert[15], and Gibbes[16]. Only a pathologist can define, in certain cases, to which type the growth belongs. Some reports state simply "adenocarcinoma"; and some of the growths may have diverged too little from the parent type to warrant further definition. With the present knowledge of the nature of cancer, recognition of these types of carcinoma would be almost of no clinical value. The essential thing is to learn early that cancer is present, and it must be seldom that enough pre-operative evidence can be established to prove the type. Atkinson[17], in 1895, when discussing intestinal cancer, including that of the duodenum, expresses what is apposite here: He says that "the presence of fragments of the new growths may sometimes be detected in the stools," and applies this especially to colloid cancer. Letulle[18], however, in the report of his case of colloid cancer of the duodenum, makes no mention of finding this material in the feces; only that the stools had been bloody and that "stearrhoea was not proved." On the other hand, not only did Charon and Ledeganck[19], in their report in 1879, claim that these gelatinous tumors were diagnosed by the presence of colloid material in the stool, but, more extraordinary, that it may be found in the feces before the appearance of symptoms. The substance, they said, was insoluble in water, not precipitated by acetic acid, and presented bloody striae here and there. Adami[20] disapproves of the definition "colloid" cancer for that malignant growth of the mucous membranes, especially of the bowel, in which there is an active development of the mucous cells and the production of mucin. For a description of this type of tumor we refer to this author and to Adami and Nicholls[21].

DO PEPTIC ULCERS OR THEIR SCARS INITIATE THE GROWTH OF CANCERS? OPINIONS

It has long been known that cancer may develop in an ulcer of the stomach. We find that Cruveilhier[22] observed it, but it is said that he did not use the microscope, and the Fenwicks[23] assert that Cruveilhier was the first to publish this observation. Also, cancer of the duodenum may occupy the seat of a simple ulcer, or, even of an *actinomycotic ulcer,* as was reported by Riedel[24] of Jena in 1896. A few instances of cancer involving a simple ulcer of the duodenum are recorded and histologically proved. For example, Letulle[18] states that the prodigiously large epithelial cells of the colloid mass had developed secondarily near the center of a large simple ulcer of the first portion of the duodenum, for which the patient had been treated about two years before. But such coexistence is most unusual; and it does not seem that duodenal ulcers, when we consider their frequent occurrence, have any part in the etiology of duodenal cancers. Further evidence for this belief is the fact that ulcers of the second portion of the duodenum are seldom found, while more cancers are found here than in the other parts. It appears, however, that the concurrence of duodenal cancer and ulcer, compared with the total number of cancers in the *first* portion of the duodenum, equals this incidence in the stomach: if as many cancers were found in the duodenum as in the stomach,

*Lewis and Stohr state, "The duodenum contains branched mucous glands or bodies which are found in the sub-mucosa. These are called duodenal glands (Brunner's glands) and they occur nowhere else in the small intestines." (Lewis and Stohr: A Text-book of Histology. 2nd edition. P. Blakiston's Son & Co. Philadelphia. Pp. 259-260.

†We have thought it worth while to repeat the definitions of these types as such classification seems practical for clinical purposes. Broders' classification of four grades, according to the percentages of differentiated and undifferentiated cells present in the growth, is undoubtedly the best method of determining the intrinsic malignancy of any tumor. (Broders: Collected Papers of the Mayo Clinic. 1925. Pp. 977-980.)

we would find duodenal cancers occurring in simple ulcers as often as gastric cancers occur in gastric ulcers. This is our impression from examining reports. We have not attempted to collect statistics because we cannot be sure that all the published cases of primary cancer of the beginning of the duodenum had their origin there. A few of these may have been cancerous invasions from the pylorus or the pancreas, and in exceptional cases a pathologist may not be able to decide.*

The first thorough investigation to emphasize the very frequent occurrence of duodenal ulcer was a publication by Codman[25] in 1909. Evidence had already accumulated to prove that this lesion was common, so that Williams of England[26], in 1908, was able to contrast this fact with the rare occurrence of duodenal cancer, the inference being that, because of the relative infrequency of duodenal cancer to duodenal ulcer, it was highly improbable that ulcer had any causative relation to cancer. The Fenwicks[23] considered that "only about 3% of all cases of gastric cancer presented a clinical history or post-mortem evidence of previous ulceration." Altogether the supposed predisposition of ulcer to cancer has been the subject of much discussion. We review briefly the reports of the Mayo Clinic, the largest single source in the world, to show how this belief took root from apparent proof and in a few years was found untenable:

Mayo, W. J.[27], states that "in 54% of the 69 cases of cancer operated upon in 1905 and 1906, by Doctor Charles H. Mayo and myself, the clinical histories and pathological examination of removed specimens made it certain that the cancer had its origin in ulcer." Three times they had found cancer of the stomach developing upon the margin of a duodenal ulcer up to that time, "showing the susceptibility of the stomach to carcinoma as contrasted with the duodenum." The same author[28] in 1909, says that they had seen but four apparently primary carcinomas of the duodenum, and "in but one did it seem probable that the cancer had developed on ulcer." Graham[29] reports, as proof for the hypothesis of the ulcer origin of cancer, that, up to 1904, they had demonstrated pathologically 18% of gastric cancers "had ulcer base." Adding this to their clinical record, he states that the evidence was fair that ulcer was the first cause of cancer in over three-fourths of the specimens, and, as a final word, "that ulcer is the great and fertile soil of cancer." MacCarty[30], in 1910, says that "71% of our resected specimens of gastric carcinoma were associated with ulcer, and 68% of our resected gastric ulcers were associated with cancer." Eusterman[31] and Smithies[32], in 1913, both add to these claims, and Wilson[33], in 1914, is emphatic in his statement that a thickened chronic scar over 1 cm. in diameter holds the probabilities of cancer. Beckman[34], in 1915, makes this surprising statement: "Primary cancer in the duodenum probably does not occur; when cancer does occur in the duodenum, it arises in the papilla of Vater or has invaded the duodenum from the stomach." We are sure the author would not have asserted this today: with the further evidence that has appeared, no one would refuse to believe that cancer of the duodenum occurs. Carman[35], in 1915, reports the observation that malignant ulcers in their gross characteristics and roentgenologic appearances are not different from benign ulcers, but that a niche 3 or 4 cm. broad is a suspicious feature in connection with an ulcer. Again, in 1921, Carman[36] describes the two types of malignant ulcer: In one type, both the border and the floor of the ulcer contain cancerous tissue in abundance, always malignant, probably; and in the other, cancer is found in the margin, but not in the floor of the ulcer. Both types, and the gradations between them, are now familiar to most clinicians and to all pathologists.

It is more than twenty years since the Mayo Clinic first declared that ulcer is the common source—"the fertile soil"—of cancer. This claim was accepted as a dogma by large numbers of the medical profession. Now, as an antithesis to past opinions of the Mayo Clinic, MacCarty[37], in a recent paper, states: "Many of our profession do not differentiate the things which are of purely scientific interest from those which are of practical importance. . . . No one should state positively that cancer arises in chronic gastric ulcer until one experimentally produces chronic gastric ulcer and produces cancer in the ulcer, and then shows that all of the conditions of the experiments are comparable to the conditions which arise in human beings." Touching especially the duodenum, Judd[38] also adds that there is little to show that cancer may develop from simple ulcer.

There may be no value in discussion of this subject at all, since views on the nature of cancer are all hypothetical. We add a guess, only, that the association of ulcer and cancer is an accidental occurrence, and that benign ulcers do

*Codman, E. A. (a personal note) states: "Duodenal cancers may not be so infrequent as statistics indicate, as this reasoning shows: We must admit that cancers not infrequently involve the whole pylorus. In such cases, it is impossible to determine at which side of the pyloric ring the cancer started. If it started on the duodenal side, it is likely that it would progress upward because the mucosa and muscular layers above it would be somewhat devitalized by both spasm of the pyloric muscle and stasis affecting the integrity of the mucosa. Therefore, we cannot argue that, because more stomach than duodenum is eventually found involved, the origin could not have been on the duodenal side of the pyloric line. The free drainage and absence of congestion of the mucosa below may have maintained the integrity of the duodenal edge, and the march of the cancer in this direction have been slower than its progress upward. If this supposition were given weight, at least half the pyloric cancers would then be considered as duodenal. It would greatly increase the ratio of duodenal to gastric cancer."

We think, however, this reasoning would not always hold: Cancer just below the pylorus usually encircles the gut like a wall, often causing great dilatation of the duodenum above it, even obliterating the pyloric sphincter, yet the growth may not extend upward, as we noted in the cases of Haley[43], Jefferson[4], and others. Jefferson's case is some evidence that the tumors may extend downward: at operation, the lesion was supposed to be a duodenal ulcer; at autopsy, two years later, the cancer began 2.5 cm. below the pyloric ring and ended abruptly 2 cm. above the papilla of Vater. In Pye-Smith's[51] unique case, a probable primary cancer encircled the bowel just below the pylorus, and there was a supposed secondary growth in the bowel 3 inches below.

not invite the growth of cancers.* We cite this very remarkable instance where a cancer did not develop on a chronic ulcer but apparently established itself below one:

1927. Man, 27. Apr. 7 entered hospital with history that 2 years before he had pain and discomfort 2 hours p. c. and at that time, at Boston City Hospital, had a cholecystectomy for gallstones, and 15 months later operation for ventral hernia, but the same symptoms persisted. *Gastric analysis:* free HCl. 5; total acidity 50. *X-ray* showed narrow antrum as in carcinoma; ulcer not seen. *Operation:* Partial gastrectomy—Billroth II. *Path. report:* Two lesions—*lower* one, an indurated carcinoma, *not* ulcerated; *upper* one, on lesser curvature, a gastric ulcer with beginning carcinoma along one edge. (1927. Peter Bent Brigham Hospital. M. G., S28559. We thank Doctor Robert T. Monroe for calling our attention to this case and for the abstract of the record.)

This dreadful disease, following its hateful bent, seems only to choose a benign ulcer as a partner of convenience.

CASE HISTORIES

We give, first, the history of our patient, the operative disclosures on two occasions, and the pathological descriptions of the cancerous portion excised from the duodenum. The pre-operative account is from notes taken by Doctor Dewis. Subjoined are 12 other cases, abstracted from hospital records, and published here for the first time.

Authors' Case:

CASE NO. 1

History: August 3, 1926. A man, 59 years old, sail and awning maker. Born in Chili of Scotch parents who died at ages of 80 and over; 2 brothers lost at sea; one sister living, knows nothing of her health. Never sick until now except that he was shipwrecked 40 years ago and was in the water of the Gulf Stream six hours, supporting himself on wreckage and bearing on his shoulders an eight year old boy. In a hospital 5 months recovering from this exposure. Soon after, had an attack of acute urethritis (?). Habits: Liquor, occasional drink; tobacco, chews and smokes; tea or coffee, none.

Symptoms: Stomach trouble began abruptly 2 months ago. He has lost 26 pounds in weight,—he now weighs 150 pounds, usual weight 185 pounds. He complains of distress in the pit of the stomach, belching, heartburn, and vomiting. *The vomit* is sour or bitter, never green, sometimes brown, but *"no blood."* All food disagrees. Often in the early morning, he is wakened by distress in stomach and vomits food eaten the day before. Bowels, constipated. *Stools:* no blood observed, and *never black.* He has no appetite, is weak, and short of breath. He is failing fast.

Physical Examination: Essential positive points in the examination are these: He is a muscular man, 5 ft. 10½ in. tall; a little pale; his collar large, clothes loose. Tongue coated—chews tobacco,—edges clean; teeth sound, some gingivitis. Blood pressure, 108/72. *Abdomen retracted; not tender;* right upper rectus tense; to right of navel, a *small mass* is *felt* which moves with respiration; gastric peristaltic waves are observed passing from left costal border downward to right.

Laboratory Data: One of two urinary specimens showed a trace of sugar. Hb. 82; w.c. 7,400; r.c. a little irregular in shape and size. Blood Wassermann not made—no reason to suspect a luetic history. Feces not obtained. *Stomach contents* aspirated 3½ hours after midday meal of milk, crackers, and blueberry pie. Only 35 c.c. of yellow-brown liquid withdrawn,—tube plugged with berries and food; specimen did not foam, no odor of sarcinae, no fecal odor; *free HCl. 0: total acidity 60; occult blood,* strongly positive. Mic. ex.: Muscle fibers (he had eaten no meat in 48 hours and vomited twice in this time); few long bacilli; no sarcinae. The next day, *stomach contents* obtained after a fast of 18 hours: *free HCl. 0; total acidity 100;* motile bacilli and groups of staphylococci; red blood cells; meat fibers. (We regret that no test for bile was made; bile ought to be found in the stomach in the more exceptional cases of duodenal obstruction below the papilla of Vater. We did not think of cancer of the duodenum.)

Comment: A diagnosis of pyloric cancer was made because there had suddenly appeared in a man 60 years old, always well before, a high degree of gastric stasis, and the analysis of the stomach contents showed no free hydrochloric acid. The absence of sarcinae is some proof that free hydrochloric acid was *continuously* wanting. There was urgent need for abdominal operation, so that X-ray examination was not advised, and especially because barium in the stomach might interfere with the operative procedure.

Operation: August 4, 1926, patient entered the Brooks Hospital. August 6, 1926, abdominal operation by Doctor George W. Morse. A cursory examination showed nothing abnormal. The pyloric ring appeared normal, and admitted the tip of the index finger. On the anterior, inferior surface of the duodenum, entirely below the pyloric ring, was a *puckered scar, 2.5 cm. in diameter,* with an inflamed and indurated border which had the aspect of an inflamed wall of a non-malignant ulcer. The gall-bladder and upper abdomen were normal. No glands were felt. *Diagnosis: Chronic ulcer* of the duodenum. *A posterior gastro-jejunostomy* was made with a short loop. More radical treatment seemed not advisable. Wound closed without drainage. There was no vomiting following operation, and recovery was rapid. On August 28, he was discharged from the hospital with no symptoms and gaining flesh—weight 150 pounds.

Laboratory, X-ray, and Clinical Notes: Before leaving hospital, *stomach contents showed no Free HCl. Stools showed blood* by benzidine and by guaiac. After leaving hospital, *he was seen frequently because the original diagnosis of cancer was being weighed against that of ulcer.* He had no symptoms, gained weight and strength, and worked. *Occult blood persistently increased in the stools. This, with help from the study of reports of duodenal carcinomas, convinced us that the ulcer in our patient was really cancer.* On October 18, 2½ months after operation, re-admitted to the Brooks Hospital. He weighed 160½ pounds and appeared well. Hb. 81%. *X-ray* examination was made with the report that the stomach was normal in size and position, and emptied well through the new opening and a little through the pylorus. "There was a filling defect in the region of the pylorus such as could be produced by chronic ulcer or early new growth." Otherwise no abnormality seen in the small or large bowel. Liver and gall-bladder areas negative. Again, *stomach contents showed no Free HCl.*

Second Operation: October 21, 1926. Pylorus found normal. Pyloric ring admitted finger tip. In the first part of the duodenum, clearly distal to the

*The occurrence of a benign duodenal ulcer below the growth, in the case of the *non-ulcerative* scirrhous cancer reported by Mauclaire and Alcée Durrieux[42], could not be cited as an instance for proof of this. The correct objection would be made that the cancer probably preceded the ulcer.

pylorus, and at the site of what, at previous operation, appeared to be a simple ulcer, there was found a discrete, *firm mass about 2 cm. in diameter* involving the anterior and inferior surfaces of the duodenum; it *felt and appeared to be malignant.* The inflammatory thickening about the area, previously noted, had diminished. The first part of the duodenum and the pylorus were removed, leaving a good margin of healthy tissue between the clamps and the growth. The patient made a good recovery and was discharged with no symptoms on Nov. 8, 1926.

Pathological Examinations: The specimen of the removed portion of the duodenum and pylorus was sent to the Sias Laboratories, Brooks Hospital. Report of Doctor Francis H. Slack:

"November 8, 1926. Section of specimen from G. L. S. showed:

Gross: Pyloric end of stomach and duodenum about 4 cm. in diameter with the lumen of the duodenum occluded by a tumor-like growth. On section, the tumor is of firm gray tissue and makes up about two-thirds of the total thickness of the specimen.

Microscopic examination shows the fibrous tissue of the duodenum invaded by epithelial cells supported by a dense connective tissue stroma. In places these cells have distinct alveolar arrangement; mitotic figures are present indicating rapid growth; differentiation is not sufficient to indicate their origin.

The mucosa of the duodenum is in places completely eroded, in other places the surface glands are partially eroded and there is an infiltration of the Brunner's glands with lymphocytes and eosinophiles. There are also occasional collections of pus. Where the mucosa is present, the tumor cells are not found to invade it, but appear immediately beneath Brunner's glands.

Diagnosis: Adenocarcinoma of the duodenum, scirrhous for the most part but growing rapidly in places.

The above statements were confirmed by *Doctor Frank B. Mallory* of the Pathological Department, Boston City Hospital."

Through an oversight, a Wassermann test was not done until December 13, 1926. A strongly positive reaction was reported, and the patient was placed on proper treatment.

Doctor Slack made the following report: "Following the positive Wassermann test, sections of the tissue were stained by Levaditi's method, but no treponema were found."

Slides stained by the hemotoxylin eosin method and others with the Levaditi stain were sent to *Doctor James Ewing,* Department of Pathology, Cornell University, who reported as follows:

FIGURE A. Peritoneal site of cancerous lesion.

"January 14, 1927. The section of tumor of the duodenum, in the case of Mr. G. L. S., shows an infiltrating adenoma malignum, becoming adenocarcinomatous in the deeper portions. I find no indications of any complicating syphilis. The sections do not show any definite proliferation through the wall of the gut, but the whole muscular coat is split up and therefore a passage of tumor cells beyond the wall of the gut is at least imminent."

FIGURE B.

January 21, 1928. Patient apparently in perfect health. No digestive symptoms. Appetite good. Bowels regular. Wt. 174½ lbs. Hg. 85%. X-ray of lungs normal. Stomach contents deeply bile stained;

no free HCl; no occult blood. Feces: guaiac, negative; benzidine, slightly positive. Wassermann, Dec. 24, '27, doubtful.

No. 2

Cancer of 1st Portion

1901. Woman, 23. Admitted to hospital with pain in epigastrium which had existed for 4 years. It extended through to the back, and had no relation to food. There had been frequent attacks of jaundice. *Cl. diag.*, gall-bladder disease. *Operation* by Dr. Maurice H. Richardson: Gall-bladder normal, but *just beyond the pylorus* there was found on the anterior surface of the duodenum, a hard, whitish patch the size of a ten-cent piece, which resembled malignant disease. This portion was removed by a narrow margin. *Specimen* examined by Dr. William Whitney. The report reads: "A small tumor from the stomach* which showed muscular tissue markedly hypertrophied and infiltrated with a new growth of epithelial tissue in small islands and with a distinctly glandular formation. The lymph nodes showed no infection. *Diag., adenocarcinoma.*" There is no record of her condition since she was discharged from the hospital. (1901. Massachusetts General Hospital. West Surg. Vol. 369, p. 178.)

FIGURE C. Showing scirrhous type of carcinoma.

*We include this case because, being familiar with the certainty in observation of this master surgeon, we are sure that his statement was correct and the pathologist's report of the tumor's location a "slip of the pen."

No. 3

1st Portion

1906. Woman, 27. Admitted to hospital, *first time*, March 27, with epigastric distress, belching, vomiting, poor appetite, constipation, shortness of breath, and palpitation. *P.E.*, negative. No gastric analysis. *Diag.*, acute indigestion. Discharged April 2, 1906. Dec. 5, 1906, *admitted, second time. Symptoms*, progressive weakness for preceding two months; 6 days before entrance, fell to floor because of sudden weakness. Vomited after meals 2 days before entrance. Had severe headaches, was very short of breath on climbing stairs, and obliged to rest every 3 stairs. *P.E.* negative except for pallor and pretibial edema. Blood: Hb. 30%; r.c. 1,312,000; w.c. 10,000. Stools, guaiac positive. No gastric analysis. Patient grew worse and died Jan. 19, 1907. *Autopsy:* 2.5 cm. beyond pyloric ring was a mass 2.5 cm. in diameter, which projected slightly above surface. Sectioning revealed mass 5 x 3.5 x 3 cm. which occupied all intestinal wall and was adherent to head of pancreas without involving its ducts, gall-bladders, or ampulla of Vater. Liver showed metastatic nodules. *Mic. E.*, tumor involved all layers of wall, and was composed of irregular cords of cells with some tendency to alveolar arrangement. No invasion of pancreas, but some increase of connective tissue. (1906. Boston City Hospital. Case No. 221, 726 and No. 228, 302. Autopsy No. A-07-22.)

FIGURE D. Showing relation of carcinoma to Brummer's glands in upper left corner.

No. 4

1st Portion

1920. Woman, 61. Admitted to hospital, Feb. 2, with a history that about once a year, over a period of eight years, she had attacks of epigastric pain which passed through to back and to both shoulder blades and which was relieved by hot tea. Nausea and vomiting had persisted throughout the last year, usually at night, sometimes after meals. The vomit consisted of the food as eaten, sometimes of brown stuff. In the last 4 months, pain and soreness accompanied these spells, and also some jaundice appeared. No loss of weight. *Urine* dark. *Stools*, "clay-colored," blood by benzidin. *P.E.*, well developed and nourished; jaundiced. *Abdomen* full and soft, with slight resistance in right upper quadrant. Feb. 4, *operation*. *Stone*, size of marble, *removed at ampulla of Vater*. Wound drained. Postoperative recovery poor, and Feb. 10 patient died. *Autopsy:* Half way between pyloric ring and ampulla of Vater was an *indurated ulcer*, 3.3 cm. in diameter. Base was thickened, edges firm. No metastases except to falciform ligament and adjacent lymph glands. *Mic. E., carcinoma* with columnar epithelial cells infiltrating the muscle layers. There were numbers of mitotic figures. *Pancreas* normal. (1920. Boston City Hospital. Case No. 399, 343. Autopsy No. A-20-38.)

No. 5

1st Portion

1921. Man, 50. Admitted to hospital Nov. 21, with epigastric distress and soreness, much belching, and vertigo. Symptoms appeared 2 hours p.c., lasted an hour, and were relieved by soda or more food. Also, for 25 years, had recurrent periods of stomach distress and belching. Otherwise, F.H. and P.H. unimportant. *P.E.* Teeth bad, tongue coated, tenderness in epigastrium 1 in. to right of median line. Hb. 75%; w.c. 8,300; neutrophiles 59%. *X-ray* and *cl. diag.*, ulcer of first portion of duodenum. Nov. 26, *operation*. Omentum, pylorus, and duodenum united in a firm mass and adherent to liver and gall-bladder. Duodenum mobilized; an ulcer of its upper surface, close to pylorus, was excised by Heincke-Mikuliez operation. *Specimen: Anat. diag.*, early adenocarcinoma of duodenum. "An irregular rounded segment of mucous membrane and muscle. 1.6 cm. diameter, near the center of which is an oval area of ulceration 0.6x0.4 cm. Edges are dark red, sections show distinct penetration of muscle by glands growing in an atypical manner." Nov. 30, patient died (1921. Mass. Hom. Hosp. Surg. Service, Case No. 133, 690.)

No. 6

2d Portion

1911. Woman, 42. Admitted to hospital Sept. 11, with jaundice, epigastric pain, nausea, and vomiting which had existed for six months. *Feces*, black at first, later clay-colored. *Cl. diag.*, not given. *Operation:* There was found a distended gall-bladder with thickened ducts and supposed to be carcinoma. Gall-bladder drained. The patient died immediately following operation. *Autopsy: Marked icterus*, and carcinoma of the duodenum, with occlusion and marked dilatation of the common and hepatic bile ducts. Common bile duct ended blindly in region of papilla of Vater. *Section of the duodenum at this part* showed a rosette-like mass. The base of the depression was smooth and gray, and rested over the lower part of the head of the pancreas into which it radiated for a little way as tough, gray, homogenous tissue. This process had sealed off the common duct, but that of Wirsung was free and passed beneath the mass. Pancreas not remarkable. *Mic. Ex.* Carcinomatous tissue, the irregular shaped cells of which occasionally formed tubules and were present chiefly, if not exclusively, in the wall of the duodenum. The *pancreas* showed fibroid change, in places, and the *liver*, degeneration of cells. (1911. Mass. Gen. Hosp. West Surg. 187-217. Autopsy No. 2923.)

No. 7

2d Portion

1915. Man, 50. Admitted to hospital, March 22, with anorexia, vomiting, and epigastric distress which bore no relation to eating. Symptoms began with flatulence in December, 1914; a month later, daily vomiting of small amounts, foul, and without blood. Bowels constipated. *P. E.* He was emaciated and cyanotic, his skin dry and hard. Teeth bad. *Abdomen* scaphoid; large peristaltic waves of stomach extending over whole abdomen; no masses; no free fluid. *Gastric lavage* produced a *large bucket full* of yellow fluid, twice the amount introduced; Free HCl. 0; t. ac. 40; lactic acid present; Boas-Oppler bacilli present; no blood. Blood: Hb. 80; r.c. 4½ m.; w.c. 8,000. *Cl. diag.*, pyloric stenosis from new growth. March 26, *operation:* Posterior gastro-enterostomy. April 9, *second operation* to relieve obstruction from kinking. April 11, patient died. *Symptoms for three and a half months. Autopsy* (excerpt): In the *duodenum*, 10 cm. from pyloric ring, near head of pancreas, was an annular growth 4 cms. in diameter associated with thickening of all the walls. Above the growth, duodenum dilated, pyriform, and at the pyloric ring measured 12 cms. in diameter. *Stomach*, tremendously dilated and hypertrophied, its mucous membrane pale, edematous, and rugae nearly effaced. *Pancreas*, no gross lesion. *Liver* weighs 1700 gms., smooth, firm, mottled, partly cyanotic, and large hepatic ducts dilated. *Mic. Ex.:* Duodenal growth reported "as being made up of a thin connective tissue stroma which divides irregular shaped alveolar spaces into large areas. The alveolar spaces are partly filled with large palyhedral cells with rather poorly staining protoplasm and oval or round nuclei." *Anat. diag.:* Adenocarcinoma with obstruction. (1915. Royal Victoria Hospital, Montreal, Can. Personal communication from Prof. Horst Oertel, Strathcona Prof. of Path., Path. Inst., McGill Univ. We are indebted to Dr. Thomas Malone, Trois Rivières, Quebec, for reference to this case.)

No. 8

2d Portion

1921. Woman, 50. Admitted to hospital, Feb. 17, with epigastric distress and pain *after food*. Symptoms began 5 months before entrance and grew worse. Constipation, no hematemesis, no bloody stools. F. H. and P. H. unimportant except that left breast removed on account of "a tumor." *P. E.* Teeth and gums diseased. *Abdomen* lax, tender in left upper quadrant; no masses. Hb. 30%; w. c. 7,800; neutrophiles 61%. *Feces*, blood present. *X-ray report*, ulcer in lesser curvature of stomach, disease of gall-bladder and appendix. *Cl. diag.*, cholecystitis and peptic ulcer. Feb. 25, blood transfusion. Feb. 28, *operation*. Adhesions between pylorus and distended gall-bladder. Cholecystectomy—200 small stones in gall-bladder. *No ulcer of stomach or duodenum found.* March 3, patient died. *Autopsy. Anat. diag.*, carcinoma of duodenum immediately above papilla of Vater. (1921. Massachusetts Homeopathic Hospital, Surg. Service, Case No. 126,907. Autopsy No. 21.15.)

No. 9

2d Portion

1921. Woman, 56. Admitted to hospital, April 2, with the history that for years patient had suffered

with attacks of abdominal pain and vomiting, and in August, 1915, an X-ray was taken at Boston City Hospital with the diagnosis of a diseased appendix. Three days before entering the hospital, her condition became bad because of abdominal pains and vomiting. On entrance, her *stomach* was found full of brown fluid, and *extended into the pelvis*. Gastric lavage and stimulation given, but patient died *without* operation. *Cl. diag.*, gastric carcinoma, *acute gastric distention*, and tetany. April 4, *autopsy*. *Anat. diag., adenocarcinoma* of duodenum *with obstruction; metastasis in liver; dilatation of stomach, of bile ducts and duct of Wirsung*. The pylorus, duodenum below the mass, intestines, gall-bladder, pancreas, and spleen were all normal. In the wall of the duodenum, extending from the ampulla of Vater to the middle of the third portion, beneath the root of the mesentery, was an elongated oval area of tumor-like tissue with a depressed, crater-like center. The thickness of the growth varied from 5 mm. in the center to 1 cm. at the epiphery. At one point there was a more marked depression from which extended a minute fistulous tract into a scarred and depressed area in the adjoining mesentery. (1921. Mass. Gen. Hosp. East Med. 242-275. Autopsy, No. 4190.)

No. 10

2d Portion

1927. Man (negro), 30. Admitted to hospital Sept. 11, with this story: *Well until July 1*—6 weeks before entrance,—when he became weak and dyspnoenic and had a little diarrhea. Aug. 1, he went to bed with pain in *right* upper quadrant which radiated to lower front of left chest and was increased with inspiration and relieved by chest swathe. From this time, he had loss of appetite, difficulty in swallowing solid food, distention of belly, and swelling of legs. The pain in r.u.q. was worse half an hour after eating, and was relieved by a hot plate; it was accompanied, sometimes, by nausea and vomiting; the vomit was a thin green liquid mixed wth food just eaten. He *lost 50 pounds of weight in 2 months*. P. H. Appendectomy 4 years before; 9 months later (3 years before), *gastro-enterostomy for gastric ulcer located on lesser curvature 2 cm. above pyloric ring*. P. E. Edema of eyelids, fluid in right chest, abdominal distention, nodular mass extending from right iliac crest into r. u. q., and pitting edema of legs. *X-ray:* of chest negative; of g.-i. tract showed *patent* stoma and irregular duodenum with hypermotility of small intestine. Hb. 40%; r. b. c. 3½ m.; w. c. 22,400. Sept. 15, patient died. *Autopsy:* Primary carcinoma of duodenum located 2 cm. below ampulla of Vater, 4x4 cm. in diameter. Extensive metastases to liver, to lymph glands, and to peritoneum. *Liver*, weight 4,000 gms. (1927. Boston City Hospital. Case No. 546,709. Autopsy No. A-27-288.)

No. 11

3d Portion

1913. Man, 63. Admitted to hospital April 23. In August, 1912, he began to have abdominal pain with vomiting, cramps, and gradual loss of 30 pounds in weight. P. H. In *1900*, Kraske operation for removal of *malignant adenoma of rectum*. He then continued well for 11 years. *Cl. diag.*, anemia, carcinoma of jejunum, and cholelithiasis. April 23, *operation:* Stomach and duodenum large, but *pylorus normal*. On turning back omentum, there was discovered a malignant annular stricture of the jejunum where the gut emerged through the meso-colon. Posterior gastro-enterostomy was made. Patient died. *Autopsy: Anat. diag., "carcinoma of duodenum* with obstruction." Duodenum not dilated except just proximal to region where it passed through the meso-colon. At this point, it was abruptly reduced to the size of a lead pencil. This stricture was the result of a new-growth-like tissue, 2.5 cm. long and 5 mm. thick, which encircled the entire wall of the intestine. The upper and lower margins of this mass were lip-like, and the mucosa between them presented a number of denuded areas. *Cross section* of the tumor exhibited a firm, homogeneous surface of a gray-white color. Below the *"duodenal constriction,"* the entire small and large bowel revealed nothing remarkable except that no traces of the previous operation on the rectum were evident. The gall-bladder contained about 500 small stones. Bile ducts, pancreas, and retro-peritoneal glands were not abnormal. The specimens, for some inexplicable reason, became unavailable. (1913. Mass. Gen. Hosp. West Surg. Vol. 809, p. 79. Autopsy, No. 3182.)

Case 12

3rd Portion

1917. Man, 55. Admitted to hospital Feb. 19 with the story that 3 mos. before he began to have attacks of epigastric distress, but not pain, 2 to 4 hours after a big meal. He was relieved only by vomiting, and there had been 12 to 15 such attacks. No blood observed in vomit or stools. Years before, had had an untreated venereal sore, and for a year he had been troubled with dull shooting pains, numbness, and tingling in arms and legs. *P. Ex.* entirely negative save for irregular left pupil with poor reflexes; absent gag reflex and achilles jerk. *Lab. data: Wassermann negative*, both blood and spinal fluid. *Hb.* 75%; w.c. 7,600, 11,200, 23,000; smear normal. *Urine:* Albumin, very slight trace; sugar 0; few hyaline casts and white blood cells. *Stools*, blood, 0 to ++++ with benzidine. *Gastric contents*, fasting, 36 and 62; test breakfast, I 40 and 68; II 30 and 44; III 8 and 40. Patient steadily failed with rising white blood count, and died in coma 3 weeks after admission. *Autopsy: Anat. diag.*, carcinoma of duodenum at duodeno-jejunal flexure with obstruction and dilatation of the stomach; metastases to regional lymph nodes; old healed tuberculosis of lungs; chronic nephritis; broncho-pneumonia; acute splenic enlargement. The tumor was an annular cancer of the gut, 3 cm. in width. Its margins were greatly elevated, especially the distal side. The base of the ring was ulcerated, and at one point the ulceration had extended through the bowel wall and invaded the surrounding fat. *Mic. ex.*, adenocarcinoma, with base of strands, nests, and alveoli of epithelial cells of irregular arrangement, mostly polygonal. Numerous mitotic figures: no round cell infiltration, and relatively little stroma. —Nov. 21, 1927, this is the only case of primary adenocarcinoma of the duodenum found in the records of the Peter Bent Brigham Hospital. All the others were those of the papilla of Vater or extension from other organs. (1917. Peter Bent Brigham Hospital. M 6464. Autopsy, A-17-21. We are indebted to Doctor Henry A. Christian for permission to cite this case.)

Note: All the cases in this series were adenocarcinomata, and the microscopic sections, in a majority of them, are available for inspection. Also, we considered the aspects which may have some force against the classification that we have given cases No. 2, 5, and 6,—in No. 2 the discrepancies of statement; in No. 5, the gross description of an inflammatory lesion which militates somewhat against the pathological report; and, in No. 6, the uncertainty supported by the expression that the carcinomatous tissue was "present chiefly, if not exclusively, in the wall of the duodenum,"—still, we believe the main facts warrant this use of data.

The following case may have been a recurrence of the cancer of the papilla and therefore we cannot include it in our list, though it may have been cancer primary in the duodenal wall:

CASE A

2d Portion

1913. Woman, November, 1908, operated upon for gallstones following six months of pain and jaundice. At that time, small mass, size of a pea, found in the papilla of Vater which obstructed the common duct. This excised (?) and common duct joined to duodenum. Sept. 25, 1913, re-admitted with epigastric pain, vomiting, and loss of weight dating from July. *Fasting gastric contents*, 32 ounces; green color; Free HCl. +; occult blood by guaiac, 0. Mic. E., starch and free fat, no sarcinae. *Test meal:* Free HCl. 31; t.ac. 62; occult blood by guaiac, 0. *X-ray* revealed a large, atonic stomach. *Diag.*, ulcer of the duodenum. *Operation:* Pylorus was normal, but stomach was much dilated and also upper portion of duodenum which was covered by adhesions. In the 2nd portion of the duodenum, where the papilla of Vater was formerly, there was found a solid tumor the size of a hickory nut. There was a growth in the liver. Posterior gastro-enterostomy made with the diagnosis of *carcinoma of the second portion of the duodenum*. Patient died later. No autopsy. (1913. Mass. Gen. Hosp. East Surg. Vol. 630, p. 177. No. 191414.)

CASE B.

Junction of 1st and 2nd Portion

1922. Woman, 67. In Aug., 1921, nausea and burning sensation in stomach, occurring one-half hour after meals, appeared and persisted; in Feb., 1922, there were added severe epigastric pains, a feeling of distention, marked constipation, weakness, steady loss of weight, and finally much vomiting. *P. Ex.*, nothing abnormal except tenderness in upper abdomen, and still very fat. *Lab. data: Normal HCl.* in stomach contents; stools, *blood positive with guaiac; urine*, negative. *X-ray* (Massachusetts General Hospital): Considerable 24-hour residue, and almost complete obstruction of the second portion of the duodenum, probably from malignant disease arising in pancreas." May 8, *operation* by the late Doctor John T. Bottomley: "The stomach, the pylorus, and the first and second portions of the duodenum greatly distended. At the junction of the first and second portions of the duodenum was a hard, nodular mass, twice the size of an English walnut, apparently of the duodenum. No adhesions. *Gall-bladder* contains numerous stones, otherwise normal. *Liver* normal. One enlarged gland in region of mass. Adhesions between posterior layer of meso-colon and stomach. *Posterior gastro-enterostomy* done with difficulty. Gall-bladder not disturbed. Great relief from operation. No vomiting; no stomach symptoms following the operation; but she gradually wore out and died May 22, 1922. There was no autopsy." (From private records of the late Doctor John T. Bottomley. We are indebted to Doctor A. McK. Fraser and to Mrs. Bottomley for the privilege of reporting this record.)

DISCUSSION OF CASES

The clinical record of our patient is unusual and instructive by itself, but, in order to draw the clinical outlines of duodenal cancer, it has seemed practicable to analyze this case (No. 1) in comparison and contrast with the others we publish here and with those found in reports.

Abrupt Onset of Symptoms: The first statement in the history, the abrupt appearance of indigestion followed by vomiting and loss of weight in a healthy man of 60, is of great importance. It suggests cancer. We thought it indicated pyloric cancer. In the future we should consider that cancer of the lower end of the stomach seldom reveals its encroachments by such rapid onset of symptoms. Cancers of the duodenum develop symptoms suddenly in about one-half of the cases, and we find it the rule in the types that are annular and constricting. It occurred in cases No. 1, 2, 3, 6, 7, and especially 11 and 12. Such treacherous hiding of symptoms until the disease is far advanced is well illustrated in the case published by Hamilton[39] of Dublin, Ireland, in 1847: the cancer in his patient occupied the first part of the duodenum; there was "obstinate vomiting," and the woman, aged 58, was well up to within five weeks of her death.

Perforations of Cancerous Ulcerations of the Duodenum, preceding any Symptoms of Cancer or Ulcer: The following report is the first description we have found of duodenal cancer. It duplicates the anatomical account of our case (No. 1), and, no doubt, would have produced a similar history had not a perforation of the bowel caused sudden death. The history, because of its priority and excellence, deserves a full transcript, though we give here the merest excerpt. Hamberger[40], in 1746, gives an account in Latin—a good exemplar for any day—of a "scirrhus" of the first part of the duodenum, the ulcerated portion of which had perforated into the large peritoneal cavity:

A woman servant at 8 a. m., on October 6, lifted a full basket of plums to her shoulder, carried it to its destination, and on returning home toward evening complained of severe pains in her abdomen. The following morning her abdomen was swollen, she had fever, and by evening was dead. After this, there was further abdominal distention, and, because of the uncommon features of the sickness and death of a woman in apparent health, a judicial section was required. On opening the abdomen, there was an explosion of air, not fetid, followed by yellow liquid, admixed with white particles. Dissection of the duodenum disclosed a scirrhous ring about four lines (¼ inch) in breadth and about six lines from the pylorus. In this ring was a round depression, about four lines across, which communicated with the peritoneal perforation. The bowel was not obstructed anywhere. The liver was described as scirrhous (metastases ?), but no evidence that the pancreas or other structures were affected by the growth. There were careful details of the successive steps in the examination, and there was, also, a discussion of the various phases of the case.

We believe the case described by Peck[41] was like Hamberger's. Peck operated twice upon the same patient, with a year's interval, for perforated duodenal ulcer. At the second operation, there was found a deep ulcer containing a small cancer which had perforated at the site of the first perforation. He thought cancer had developed in the interval; we believe the ulcer of the first perforation may have been cancerous. In cases 9 and 12, the cancerous ulceration had penetrated the bowel wall and extended into the surrounding tissues.

We ought to notice here, while giving priority to Hamberger's report, that the experienced prosector Mediavia gave an account of a cancer of the first portion of the duodenum to Morgagni in early October, 1733, the time of the incident, but Morgagni[7] did not publish this until long afterward. An excerpt of portions of Article 12, which is relevant to our paper, follows:

A Capuccin monk died at the age of 33 as a result of various morbid conditions, but vomiting and dropsy were stated. The belly contained two pints of water. The liver was enlarged, of a white color, and the lobules conspicuous. The pancreas was hard, and the spleen enlarged. The stomach showed nothing worthy of mention. In the duodenum, at the distance of an inch below the pylorus, was a blackened area, and, just below this, a scirrhus. The father of pathological anatomy comments here upon the character of the vomiting being the same whether the obstruction is located in the duodenum or at the pylorus.

Cancer without Ulceration: We usually expect to find blood in the stomach contents with *obstructive* duodenal cancer, and nearly always in the feces whether there is obstruction or not. The exception, when blood is not found in the stools, is important. The scirrhous form of cancer does not always exhibit ulceration, and this statement applies to other portions of the gastro-intestinal tract. We have noted, as instances of *non-ulcerative cancers,* the scirrhous cancers of the duodenum reported by Jefferson[3] and by Mauclaire and Alcée Durrieux[42]. In the case of the latter, however, there was an ulcer below, but having no connection with the dense mass which involved the muscular tunic in the region of the ampulla of Vater. Ulcerated cancers of the gastro-intestinal tract are so general that we should be on our guard for the rare exceptions.

Dilatations of Stomach and Duodenum: Obstructions and Other Causes: The stomach was not much dilated in our patient, but large amounts of gastric distention often develop when cancers of the duodenum cause obstruction as in cases No. 7, 9, 11, and 12. Also, in Haley's patient[43], with a scirrhus of the first portion of the duodenum, the stomach was immensely dilated; and this was noted in similar cases reported by Cayla[44], Markoe[45], Chomel[8], Geiser[46], and others. When vomiting appears early in the course of symptoms of duodenal obstruction, gastric and duodenal dilatations may not occur. It may be suggested that frequent emptying of the stomach prevents enlargement. Probably this is not the whole explanation. Such an instance appears in one of the two cases reported by Whittier[47]:

A man, 66, had symptoms of vomiting, loss of strength, and constant desire for food, beginning one year before death. At post-mortem, there was found a smooth, rigid, gristle-like tumor about five inches long, involving all the coats of the first and descending portions of the duodenum. The canal was almost completely obstructed; yet, the stomach was *not* appreciably dilated.

When vomiting is a deferred symptom, there is sometimes great dilatation, so that the boundary between the stomach and duodenum has been found wholly obliterated by this process of distention. The stomach and the portion of the duodenum above the growth may form one large cavity. Such an instance is described in another case reported by Whittier[47]:

A man, 33, had symptoms of indigestion, nausea, and great discomfort appearing one year and a half before death; in the last 6 months, he began to vomit enormous quantities containing bile. The vomitus looked "as if Paris-green had been mixed with it." At post-mortem, the stomach and duodenum above the obstruction were found greatly dilated, and the line dividing the stomach and duodenum could not be marked out. A fungoid, annular growth, acting as a valve, completely obstructed the bowel 8 inches below the pylorus; water would not pass from above, but pencil could be pushed through from below.

The early symptoms in the second example might have been consistent with simple ulcer, but with the onset of vomiting, bile appeared, indicating that the obstruction was below the ampulla of Vater.

In Mason's case[48], only the duodenum above the cancerous obstruction was described as dilated, as it was in Jefferson's case[3], where the duodenum between the obstruction and the pylorus was twice the normal size. We have also observed this result in cancerous invasion of the duodenum from the pancreas, and we assume that the secretion of the mucosa, between the duodenal block and a resisting pylorus, is able to distend the bowel. It has been pointed out by Turner[49] that *if intestinal secretion has no free outlet, its pressure may be great enough to rupture the gut.* We refer, further, to a report by Montgomery and Sherman[50] of an enormously distended stomach associated with a scirrhous cancer of the duodenum 2 inches below the pyloric ring; but, in the minutely described and notable case, the bowel was not obstructed and the pylorus was normal; the stomach completely overlapped the liver, contained dark, acid fluid, and had thin and friable walls. The writers were "convinced that the distention of the stomach was a simple dilatation from its walls being too weak to resist the pressure of the contents." We wonder if, in many cases, dilated stomachs are not dependent upon some slow-working process, systemic poisons, similar to the cause underlying acute dilatation. The patient, in this case, was a deaf mute. He could not relate his symptoms in words, and we digress to repeat the perfectly clear account he gave of vomiting: "He doubled his fist tightly, and describing circles from a point rather low down in the right hypochondrium, moving rapidly upward and to the left until he reached the precordial region, then shot his fist quickly up the line of the esophagus, ended by making a vomiting motion with his mouth and throat."

Two Cancers occurring in the Bowel at the Same Time: More than one adeno-carcinomatous growth of the gastro-intestinal mucosa is *very* seldom discovered, and, when found, one is

generally supposed to be a primary growth, and the other or secondary growth to depend for its origin on the first. Pye-Smith[51] reported two adenocarcinomatous growths in a duodenum, and questioned whether the lower of the two masses in the bowel had developed by means of direct transference or grafting. The upper cancer formed a complete circle about the gut just below the pylorus; the larger growth was located 3 inches below it. Courmont and Lannois[52] report the coexistence of cardiac and duodenal cancer. Coffey[53] of Oregon, in February, 1927, removed from a patient the upper half of the colon and lower 3 feet of the ileum for an adenocarcinoma directly in the cecum and another in the ileum one foot from the ileo-cecal valve. Whether or not it is possible for two such growths to appear simultaneously in the bowel, without causal relation, is suppositional.

Diverticulum, a Location for Cancer: Diverticuli of the duodenum are generally inoffensive. A diverticulum, however, may be the seat of cancer as reported by Morrison and Feldman[54]: a mass, the size of a walnut, was found at the mouth of a tubular pouch, one inch by 2½ inches, filled with a clear fluid, which arose from the duodenal cap. There were metastases in the liver, and the pancreas was invaded. The X-ray picture represented a flattened cap and an irregular second portion of the duodenum. A diagnosis of probable cancer was made.

Gall-bladder and Liver Complications: Primary cancers of the second portion, or ampullary region, are not so rare, considering all reports, as cancers of other portions of the duodenum. McMeal[55], Boxwell[56], Berry and Cockle[57], Butz[58], Chauffard[59], the Mayos, and others have reported cases of primary carcinomata of this region, and in our series there were five cases. We will not attempt to review, here, the multiplicity of complications which usually arise early when the growth is located in this part, but only to mention that there occur great distentions and, also, obliterations of the biliary and pancreatic ducts, as found in case 9, and dilatations and atrophies of the gall-bladder, in addition to suppuration and perforation of this organ. In the case of McMeal[55], in 1835, the gall-bladder was enormously distended and contained stones, and all the neighboring structures were invaded by the cancer. Boxwell's case[56] furnishes an example of metastases advancing to remote organs while sparing those near the origin of the cancers; carcinomatous nodules were scattered throughout the lungs, but there were none in the liver. Intense jaundice is a usual accompaniment of cancer of this area, as in case 6, but the complications naturally expected do not always occur. As an exception, we found in the report of Courmont and Lannois[52] that the mushroom-shaped cancer of the duodenum was exactly at the level of the papilla of Vater, yet the duct of Wirsung and bile duct were open, and there was no jaundice. The cancer in the esophagus in the same patient obliterated its lumen. Later stages of cancer of any portion of the duodenum produce the same terminal invasions and symptoms. Coupland's case[60] illustrates the way in which a primary cancerous ulcer, *just below the pylorus,* may cause obliteration of the gall-bladder and cystic duct, great dilatation of the hepatic ducts, and fatal jaundice. The author remarked that he had failed to find any case on record (1873) in which fatal jaundice had followed disease of the common duct so near its origin. From Rolleston[61] we know that primary cancers occur at the junction of the common and hepatic ducts

Gerster[62], in a very similar case to that of Coupland[60], made a diagnosis of obstruction of the common duct caused by stone. The operation revealed a gall-bladder filled with stones, which was removed. A post-mortem showed that a duodenal cancer had invaded the bile ducts. In Cabot's report[5], the pre-operative diagnosis and surgical findings were like those of Gerster, only the autopsy revealed in this case a cancer lower in the duodenum. Rolleston[61] states that *gallstones, associated with biliary stasis by cancer, are less common than from other causes,* indicating that biliary stasis has little to do with the formation of the stones. In Chauffard's case[59], the jaundice disappeared before death, because the obstructed common duct again communicated with the duodenum by means of cancerous ulceration.

Invasion of the Pancreas: Cancerous invasion or infiltration of the pancreas from the duodenum may be extensive without the exhibition of serious symptoms unless the growth occludes the ducts of Santorini and Wirsung. When these ducts have been closed, which may result from a very small growth, serious disturbances show themselves: offensive, fatty diarrheas, with wasting of the patient. There is often great atrophy of the pancreatic tissue. As examples: In Jefferson's case[3], the pancreas, as a whole, was enlarged, but it revealed large retention cysts, great fibrosis, and the glandular tissue was reduced to a minimum; yet the Islands of Langerhans could be found and there was no glycosuria. In Letulle's case[18], the pancreas was shrunken to the size of the thumb. In discussing this case, Pilliet said that he had examined a series of cases of atrophy of the pancreas, and had been impressed by the resistance of the pancreatic acinus to the stifling by the sclerosis which was indicated in Letulle's case. In a very much atrophied pancreas—one reduced to a fibrous tract—he said one still finds acini which can be recognized.

Palpable Tumor; Flattened Abdomen: We have noted, in the majority of physical examinations, the infrequency with which tumor masses have been felt in cases of duodenal cancer. Whether the tumor is fixed or slightly movable would aid little in determining the

growth's location in the duodenum. The doubtful tumor which was felt in our patient was probably not the cancer. Also, in a great percentage of reported cases, the abdomen was flat or retracted, and we should expect this.

Importance of making Analysis of the Stomach Contents: Gastric analysis may be a very valuable aid in differentiating duodenal cancer from ulcer. *We have never seen a simple duodenal ulcer coexistent with continuous absence of free hydrochloric acid, but this is the rule with duodenal cancer.* In our case—No. 1,—the history and examination, alone, warranted a diagnosis of cancer, but this was confirmed by the absence of free hydrochloric acid in the stomach. The gastric analysis in case No. 7 was similar. That this is the general rule is shown in these reports: Ewald[63] found no free hydrochloric acid in the stomach contents of his case though a cancer had become embedded in the scar of an ulcer 2 cm. below the pylorus. We think this important especially because the cancer was stated to have appeared in a simple ulcer. Like results were reported in six of the cases tabulated by Eusterman, Berkman, and Swan[1], the cancer growing in the first portion of the duodenum in three, in the second part in two, and in the terminal portion in one of the cases; the remaining cases are examples of much diminished free hydrochloric acid, or a low normal percentage—20—except in one case of abdominal carcinomatosis with cancer of the terminal duodenum the free hydrochloric acid was mid-normal—27. Other laboratory reports of published cases conform to these analyses. The importance of testing for bile in the gastric contents is also indicated in Rolleston's replete account[64] of a cancer of the third portion of the duodenum. In this case there was no free hydrochloric acid in the large amount of dark, offensive vomitus, but there was bile. It was this *finding of bile in the absence of abdominal distention* that enabled him to decide that the obstruction was in the small bowel below the outlet of the bile duct. The symptoms of this patient, with bile in the vomitus, were like those described by Lacaze[65] in 1852. In the post-mortem—a woman, aged 64—there was found a cancer of the third portion of the duodenum, and the stomach and duodenum, above the tumor, were much dilated. In the case of Pye-Smith[51], also, the dark vomitus, with fecal odor and the presence of bacilli, contained no free hydrochloric acid. In definite obstruction of the duodenum, the gastric contents are undoubtedly modified by the backing-up of the secretion of the bowel, and also by bile and pancreatic juice when the constriction is below the papilla of Vater. In Clark's case[66] of colloid cancer of the lower ileum, no free hydrochloric acid was found in the stomach, the result, probably, of admixture of gastric with intestinal contents. We think it will be found, later, that the cancerous condition *directly* governs this phenomenon in some degree. In our patient, the area of duodenal mucous membrane between the pylorus and cancerous constriction was very small, and any secretion by its alkalinity could scarcely influence a large volume of gastric residue. We are convinced that the absence or even diminution from normal of free hydrochloric acid militates against the question of benign duodenal ulcer.

On the other hand, a large amount of free hydrochloric acid in the stomach contents seems compatible with cancer of the duodenum, as instanced in cases 12, A, and B, and we quote as confirmation the case of Czygan[67]: he reports a large free and normal combined hydrochloric acid content in the stomach, and operation located a cancer in the first portion of the duodenum. Skillern[68] reports a free acidity of 45, total acidity of 65, with a cancer of the duodenum, pylorus, and pancreas. We should all know this exception applies in gastric cancer. Benedict[69] found it to be so in his patient who died two months following the onset of symptoms. The partial autopsy revealed a pyloric cancer, the size of a butternut, which apparently had its origin in the base of a broad duodenal ulcer.

Lactic acid, when found in the absence of hydrochloric acid in the stomach, may contribute somewhat toward a diagnosis of cancer; it is noted in case 7. In Aaron's case[70] of colloid cancer of the duodenum, which began 4 cm. below the pylorus and extended down to the common duct, there was no free hydrochloric acid, and no sarcinae or Oppler-Boas bacilli; lactic acid was present, and also pepsinogen and rennet zymogen. A determination of the bacteria in the gastric contents, with the limited exception of sarcinae, has little value in differential diagnosis. And we repeat, for emphasis, that when *sarcinae* are present in the stomach contents of *chronic* gastric stasis, we also find free hydrochloric acid, but free hydrochloric acid is usually not present in this condition when sarcinae are absent.

Close Resemblance a Duodenal Cancer may bear to Simple Ulcer: In some cases, the clinical diagnosis of cancer, in conjunction with that of the roentgenologist, is supported by the disclosures at operation or the pathological examination, as in case 9; or a diagnosis of ulcer is made and cancer found, as in case 8. At the first operation on our patient—case 1—there appeared a good surgical reason for dissenting from the clinical diagnosis. We had made a diagnosis of cancer of the pylorus with obstruction, and were much surprised to find, on the duodenal cap, a puckered scar which felt and looked like that of benign ulcer. The scar, which had a diameter of 2.5 cm., was rather large for a non-malignant ulcer, but the bases of simple ulcers may have larger diameters. It was diffi-

cult to adjust a diagnosis of benign ulcer to the results of the clinical and laboratory investigations,—it could hardly be done. The doubt that lingered led to further study, a definite diagnosis of cancer of the duodenum, a second operation, and, we hope, a cure. (The whole proceeding evinced such fallibility, on the doctors' side, and such faithful assurance on the part of the patient and his friends, that we shall not soon forget the lesson.)

The decision for a second operation was governed much by a study of reports of duodenal cancer, but the progressive increase of blood in the stools was the deciding influence. The bleeding of simple ulcers is rarely constant and after gastro-enterostomy generally lessens or ceases. A bleeding intestinal cancer always bleeds. The history of sudden symptoms of obstruction in a well man of sixty is strong evidence of cancer. We have never known a latent chronic and benign ulcer to do this, or to produce constant pylorospasm. The error we made had a precise parallel in this brief account:

Jefferson's[3] case: A man, aged 55, previously well, in the fall of 1911 began to suffer with epigastric pain followed by vomiting. At first, he vomited once or twice a week, at the last it was daily; in the beginning, the amounts were small but later large. He lost weight. His doctor advised operation, and he went down from Alberta to Victoria, British Columbia, where he had performed a gastro-jejunostomy by a "well-known" and "an experienced surgeon" of that city. The writer says that "the hospital records state that a duodenal ulcer was found, and the surgeon informs me that it was to all appearances an ordinary, non-malignant lesion." After this the patient put on flesh, vomited no more, returned to the prairie, and was in excellent health for two and one-half years. Toward the end of 1913, he began to lose weight and strength, and in December, 1914, a diarrhea set in and continued until his death in April, 1915. Doctor Jefferson first saw the patient in February, 1915, when he returned to the coast to regain strength. He was "merely skin and bones," obviously in the last stages of malignant disease, and had lost twenty-four pounds in eight weeks. He had not vomited once since operation. He died of exhaustion. There is no record of gastric analysis. The stools were abundant, pale, fatty, and offensive, such as are found in diseases of the pancreas, not like those of enteritis. A post-mortem disclosed an obstructing, annular, columnar-cell carcinoma of the duodenum. It began 2.5 cm. below the pylorus and ended abruptly 2 to 3 cm. above the bile papilla. Above the growth, the duodenum was widely dilated, but the pylorus was normal. *The growth was not ulcerated,* but smooth and white with no sign of preceding simple ulcer. The tumor extended into the upper aspect of the enlarged head of the pancreas. The ducts of the pancreas were dilated. No probe could be passed into the duct of Wirsung, and the papilla of the duct of Santorini was obliterated. The pancreas contained a number of intercommunicating cystic cavites, and its tissue was reduced to a minimum.

Difficulties in Differential Diagnosis: Jefferson[3] believed that the cancer in his patient had been engrafted on a simple ulcer base, and we quote in full what he says because it sets forth essential points for discussion in these cases: "It may be argued that the case was one of carcinoma from the outset, and that at the operation it was seen in its early stages before its malignancy could be recognized. Although this is very plausible, I do not think that such was the case, and for this reason: He was operated upon for gastric stasis only a few months after he had begun to suffer from indigestion for the first time. Now, if it was a duodenal cancer from the outset, it is remarkable that it should have been large enough to have produced food retention, and yet be mistaken at operation by an experienced surgeon for a simple ulcer. Equally it is peculiar that a duodenal ulcer of about four months' standing should cause stenosis; for in the early stage gastric hypermotility and rapid emptying is the rule, as radiographers have taught us. The probabilities are, it seems to me, that he had had a latent duodenal ulcer for some time, and that it was not until it began to cause duodenal stasis that he suffered any distress and began to vomit."

We believe that the lesion in Jefferson's case may have been a carcinoma from the outset, for, as our case proved, an early stage of cancer may accurately simulate a simple ulcer and yet produce gastric stasis. The delay in occurrence of symptoms was *not* too long after the operation, we think, for the original lesion to have been cancer. We have found nothing in the history of the subject to indicate that cancer of the duodenum, intrinsically, is rapidly fatal. If there is obstruction of the bowel, or extensive invasion of the pancreas and liver or their ducts, the patient soon dies. Cancer of the duodenum develops at the same rate, probably, as a similar growth in the stomach, but in the duodenum cancers seem not to metastasize early in their growth. When a small scirrhous tumor blocks the bowel just below the pylorus, and the obstruction is corrected by a gastro-enterostomy, there are chances that the patient might live for three or four years. We observed an instance where this type of cancer attacked the stomach: there was no obstruction, greatly increased transmission of food, and the patient lived, with little pain, nearly four years after the beginning of symptoms. This type of cancer is sometimes labeled "linitis plastica." *The invasion of a scirrhous cancer is slow.** It is known, as Jefferson says, that a duodenal ulcer in the early stage does not produce permanent gastric stasis, and we can hardly coincide with this supposition that a duodenal ulcer may cause definite obstruction three or four months after the first symptoms. Jefferson further remarked that "it may be argued," and we do argue that his case was one of carcinoma from the outset. We base this statement on cases No. 1, 2, 3, 4, and 5, and, especially because vomiting was an

*This, however, has no relation to the inherent malignancy of the growth: scirrhous cancer would probably be found in Grades 3 and 4 of Broders' index, the more malignant forms.

early symptom, on the reports of Hamilton[39], Haley[43], Cayla[44] and those of others quoted in the paper. Jefferson states that the cancer ring was 2.5 cm. below the pylorus, with no evidence of pre-existing ulcer. We think that the lesion and its appearance at operation, in his case, were very similar to that in our case and others which we have quoted. We are indebted to him for his excellent article and fine illustrations.

Primary Cancer of the Second Portion and of the Papilla of Vater: Cancers in the first portion of the duodenum do not produce the early complications they cause when found in the ampullary region, but in the later stages, regardless of the location, all the contiguous structures may be invaded and metastases occur in various parts of the body. There appears to be this difference, between primary cancers of the duodenum and those of the papilla of Vater, *that cancers of the papilla seldom obstruct the bowel.* The symptoms of biliary obstruction, of course, are the same in either case. In certain cases, recollection that the papillary cancers rarely block the gut may be some aid in differential diagnosis. The cases of Pilliet[71], Hall[72], Hanot[73], and Ely[74] are some examples of cancer of the the papilla. Obstructive jaundice existed in all these, which we quote, yet we notice this variation in the condition of the pancreas: that it was small in the case reported by Pilliet, as it was in Letulle's[18] case, already mentioned; that only a portion of the pancreas was affected in Hall's case; and that in the cases of Hanot and Ely, the pancreas was normal. This is some evidence that, in cancerous obstruction of the common duct, we need not always anticipate serious changes in the pancreas. We were impressed with the account that Hall gave of the *ruptured end of a bile duct in the left lobe.* There was found a large retro-peritoneal cavity filled with bile that surrounded the left kidney. Biggs, in commenting on Hall's paper at the time it was read, said that, two years before, a specimen had been presented showing a ruptured bile duct of the left lobe resulting from a stone in the common duct, and, also, that others had observed, in similar cases, that the ducts of the left lobe of the liver were those which were most dilated, but the reason had not been explained.

Syphilis associated with Cancer of the Duodenum: In our patients, syphilis came to mind in the differential diagnosis only to be disregarded. It was thought unlikely. The urgency for exploratory abdominal operation forced to the background all but the most common tests. Again, through an oversight following the first operation, a blood Wassermann was not made. We thought it had been done. It was a matter of surprise, some time after the second operation, to find that the test had not been made at all. The positive result, then determined, caused us no little concern until further examinations of the pathological specimen proved that no spirochetes were present and no gumma. This oversight was probably fortunate for the patient; otherwise it is more than likely that we would have applied therapeutic tests and other treatment when an immediate operation was needed. Later we observed this title: "Cancer du Pylore d'Origine duodenal chez an Syphilitique," a report by Curtis and Surmont[75]. The account is elaborate and instructive, and we find it particularly appropriate to notice that, while their patient's digestive troubles seemed positive enough to require surgical treatment, they postponed operation because they considered a positive Wassermann warranted tentative specific treatment. This was begun on October 8, 1921, at first with apparent improvement, and continued nearly to the time of operation on January 13, 1922. The patient died on the following day. It was not definitely decided whether this adenocarcinoma with mucoid transformation had its origin in the duodenum or not. The essential point for our use is that the authors indicate the operation came too late because of the specific treatments.

At the present time, the differentiation of syphilis from cancer of the bowel, in borderline cases, is quite impossible. The determination by tentative treatment is untenable unless the condition is inoperable. Already much has been written on gastro-intestinal syphilis, including that of the duodenum. Mortimer[76], in a short, clear article, has stated the salient facts and methods of treatment, and reviewed some of the best work on the subject. He states that "syphilis of the intestinal tract may develop within the first few years of infection, though in hereditary lues, the symptoms have been known to manifest themselves after a lapse of twenty-five years." Syphilis of the stomach has been diagnosed as carcinoma of the pylorus. The fundamental anatomical changes in both syphilis of the duodenum and of the stomach are identical. Intestinal gummata are found less seldom in the jejunum and ileum than in the duodenum. Stenosis of the bowel may develop from cicatricial contraction of an encircling ulcer resulting from necrosis of a gumma. The syphilitic ulcerations we have observed in the stomach were serpiginous.* Oertel[77] states, "As regards syphilitic infections of the gut, apart from congenital syphilitic lesions, their localization in the small gut is even more common than in the large intestine, in which—principally in the rectum—primary or tertiary gummatous lesions are occasionally found. The recorded instances of syphilis in the small gut appear to predilect the upper parts, in contra-distinction to tuberculosis. There, nodular swellings with subsequent indolent ulcerations and flat bases have

*Dewis: Aids in the Diagnosis of Surgical Conditions of the Stomach with Especial Reference to the Characteristic X-ray Appearance of the Syphilitic Hour-glass in Contrast to those of Simple Ulcer and Cancer. Can. Med. Ass'n. Journ., December, 1915.

been described; and, as in a case which I observed, cicatricial stenoses. Characteristic is their perivascular arrangement and the involvement of the blood vessels themselves. A few cases have been reported with annular constriction, and therefore simulating cancers." The X-ray appearance in duodenal lues has characteristic value in differentiating syphilis from cancer, as we have noted it in gastric syphilis. But X-ray examination would be impossible in cases similar to ours, and, whatever the diagnosis, duodenal stenosis requires exploratory abdominal operation, probably gastro-enterostomy. A mere question of malignancy indicates resection of the part.

The Totals of Duodenal Carcinomata: We have made some effort to examine the available writings on the subject of primary duodenal carcinomata, but have not attempted to determine the total of reported cases. McGuire and Cornish[78] in 1920 estimate, from a collection of hospital reports of the world, that 50 duodenal cancers were found in 151,201 autopsies,—about one duodenal cancer to 3,000 autopsies. These authors also report two cases of cancer in the first portion of the duodenum. Nagel[79], in his article on this subject, says that "undue prominence should not be given these unusual conditions." We agree with this statement—though prominence can do no harm,—and also with his belief that a knowledge of rare lesions forms an essential supplement to a thorough understanding of the diseases of any organ, and is useful in the practice of surgery.

Additional Case Reports: Concurrent with the study of reports by writers already quoted, we have examined the following: Vickers[80] reports obstructive cancer of the duodenum at its junction with the jejunum, gastro-enterostomy. Williams[81] in 1855 gives a report of an unusual and instructive case: among other symptoms, his patient was jaundiced; post-mortem section revealed an obstructing, walnut-sized cancer of the duodenum below the papilla of Vater; the duodenum above the growth looked like a second stomach, occupying the normal position of the transverse colon; the pylorus, however, was normal as was also the liver. The author in his comments explained the jaundice by absorption of bile from the contents of the immensely dilated duodenum. Descroizille's[82] case showed enormous distention of the stomach which contained 15,000 grams of coffee-like material. Guéneau de Mussy's[83] case was a cancer of the duodenum with dilatation of the stomach and duodenum. Forgue and Chauvin[84] quote a case by Höft[85] and make an elaborate analysis of the subject and résumé of many articles, but their own case was a round-cell sarcoma of the duodenum, and they also quote cases and discuss this subject; Peaudeleu[86] reports a primary cancer of the duodenum which had no clinical signs to establish findings at autopsy; and Disqué[87], in his paper, speaks especially of the differential diagnostic worth of the test for occult blood. Hirschel's[88] account of an operation to relieve obstruction of the common duct is valuable; he removed a gall-bladder filled with pus, a section of the duodenum in which was located a tumor of the papilla of Vater, the size of a walnut, and also a piece of the pancreas. The cut portion of the pancreas with its duct was drawn into, and the common duct implanted in the bowel. The final step of the operation is skillfully indicated by drawings. The patient recovered and lived a year. The account is somewhat similar to that of case A. Lichty[89] publishes an interesting paper, but not any of the six cases were qualified as primary cancer of the duodenum. Syme[90] reports a cancer of the third portion of the duodenum, resection, cure. Geiser[46] gives an account of duodenal cancers, two of the third and one of the fourth portion. Pic[91] in a general review of this subject quotes Bard[92] who presented a case of primary epithelioma of the glands of Brunner. The case of Herz[93], hard growths in duodenum, 6 cm. below papilla of Vater, and that of Baillet[94], death from obstruction of duodenum by cancer, are both instructive accounts. The inaugural dissertations of Günther[95] and Warmburg[96] are excellent contributions to our subject. Each reports a case and makes comparisons with other reports, and both consider especially the subject of diagnosis. Günther gives particular attention to laboratory evidence. Dickinson[97] reports a scirrhus of the duodenum which extended from the pylorus to the jejunum with constriction midway. The description resembled that type of cancer, less seldom found in the stomach, where this organ is converted into a rigid tube through which a barium meal is seen to pass as rapidly as through the esophagus. Head[98] describes a cauliflower type of carcinoma which he found in the third portion of the duodenum. The ante-mortem diagnosis was duodenal ulcer with cancer superimposed. The *free hydrochloric acid* in the stomach contents was *above normal.* Crane[99] of Kalamazoo, Michigan, reports a case of circular cancer of the duodenum below the papilla. Free hydrochloric acid was present in amounts below normal. X-ray plates, after a barium meal, showed gastric stasis and a dilated bulb, but the cancerous lesion was not demonstrated. Later, the patient was operated upon at the Mayo Clinic by Doctor William Mayo. Bloch's[100] report gives a clinical diagnosis of cancer of the duodenum, in which a gastro-enterostomy was done; the X-ray had reported gastric carcinoma. Herman and von Glahn[101] report a case of carcinoma of the supra-ampullary portion of the duodenum. Bibby and Stewart[102] publish a very interesting case of a constricting primary carcinoma of the first portion of the duodenum with a secondary growth in the common duct; there was also present a duodenal diverticulum, ¾ inch in depth, which admitted the tip of the little finger. Patel and Grange[103], while they do not report any new case, discuss fully the various causes of duodenal obstruction

and give a good bibliography of the subject up to that date. Spillmann[104], in 1882, reports a case, in a man aged 49, of duodenal carcinoma at the level of the ampulla of Vater, the annular constriction admitting the little finger. The cancerous ulceration had formed a communication between the duodenum and the common bile duct. The history states that the patient had been sick a few weeks and was brought to the hospital showing pronounced icterus. The stools were colorless, but later became almost normal. It was believed that the flow of bile was shut off by the invasion of the cancer, at first, but was reestablished by ulceration. Wurm[105], in 1902, reviews the literature, discusses the cause of duodenal carcinoma, and publishes two cases of the first portion: a constricting carcinomatous ulcer of the superior, horizontal portion causing gastric stasis, and a carcinoma between the descending and upper horizontal part of the duodenum with stricture and dilatation above. Boyé[106] reports an ulcerated cancer of the first portion of the duodenum in a woman of 64. The symptoms of increasing pain, anorexia, and vomiting existed for about four months. The stools were at first black and became colorless, and a tumor was felt. Schrötter[107] reports a case of a man 68 who died of medullary cancer of the duodenum. He had been much jaundiced, but had no vomiting. The post-mortem disclosed a carcinoma on the base and margins of a round ulcer of the duodenum in its free descending portion, with secondary growths in the right pleura. Also, there was present on the lesser curvature of the stomach, four fingers' breadths above the pylorus, a round ulcer the size of a "Kreuzer" coin.

Summary: Our opinions on the subject of duodenal carcinomata, based on the study of cases reported in this paper and of those published by others, are stated here:

1. Duodenal cancers occur usually in the sixth decade of life. The youngest patient recorded as having this disease was 23.

2. Cancers of the duodenum probably develop independently, and little evidence is found that they ever arise in pre-existing benign duodenal ulcers.

3. Obstructive symptoms of duodenal cancer are more rapid in onset than those of pyloric cancer.

4. Primary cancer of the duodenum *usually* obstructs the gut; primary cancer of the papilla of Vater *seldom* blocks the bowel.

5. *Abrupt* appearance of gastric stasis in a person of middle age suggests *cancer of the duodenum,* and absence of free hydrochloric acid in the stomach confirms the diagnosis. A combination of these two facts of history and laboratory evidence is not compatible with the natural history of simple ulcer of the duodenum or of pyloric cancer.

6. Bile will be found in the gastric contents when the duodenal constriction is below the ampulla of Vater.

7. Blood is present in the stools in cases of cancer of the duodenum. An exception would occur in the rare cases of scirrhous cancer, without ulceration,—only two cases were noted.

8. Perforation of the bowel at the site of a cancer of the duodenum may cause the first symptoms observed. An apparent example is the first case recorded—Hamberger's, in 1746.

9. Perforation of a duodenal ulcer, occurring in the absence of chronic symptoms of indigestion, is suggestive of cancer, especially in a patient of 60 or over.

10. Metastases, in duodenal cancer, are probably not found in large percentages of cases. In our small series of 12, metastases occurred in 3 cases—an incidence of 25%. (There was invasion of regional lymph nodes in 2 other cases.)

11. Syphilitic ulceration and cancer of the duodenum may present symptom complexes and laboratory data hardly distinguishable by present methods. When cancer is suspected in a patient, whose blood or spinal fluid shows positive evidence of lues, operation should not be long delayed for therapeutic tests.

12. Gummata rarely occur in the duodenum, not so rarely in the jejunum and ileum.

13. X-rays may aid in the diagnosis, particularly in the absence of obstruction.

14. It may not be possible, at operation, to distinguish simple ulcers from early cancers of the duodenum. It is safer to excise the lesion, if the clinical diagnosis is cancer, especially if free hydrochloric acid is absent in the gastric contents.

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FRACTURE OF THE CARPAL SCAPHOID

A New Method of Treatment With a Report of One Case

BY JOHN D. ADAMS, M.D., F.A.C.S., AND RALPH D. LEONARD, M.D.*

INDUSTRY contributes many cases of fracture of the carpal scaphoid bone. Many of these cases, even today, pass unrecognized until disturbance of function and persistence of symptoms force the patient to seek further advice, when usually through the agency of the X-ray a diagnosis is made.

That roentgenography, scientifically employed, has aided materially in advancing the study of this injury is an undisputed fact. The uncomplicated case presents an almost classical picture of subjective and objective symptoms and with the help of the X-ray an early diagnosis should be unfailing.

It is probably true, however, that as many erroneous opinions have been given from X-ray films of the carpal scaphoid bone as any other bone in the body. Fractures are frequently diagnosticated when not present and just as frequently the scaphoid is considered to be normal when later on fractures are proved to be present. This tendency to error results, first, from the peculiar shape of the scaphoid with its various angles and joint surfaces; also from the fact that many scaphoids have a tendency to show a septum in the mid portion which gives a misleading appearance on the X-ray film. In the second place, the location of the scaphoid bone is such that the routine lateral view is of very little help in the detection of linear shadows on account of the other superimposed bones of the wrist. No one is justified in deciding on the absence of a fracture of any bone from a film taken only in one plane.

A thorough examination of the scaphoid requires: first, examination of both scaphoids for comparison, including stereoscopic views. Second, the wrist should be in as extreme ulnar flexion as possible. Ulnar flexion brings the scaphoid into view to the best advantage. Third, films should be made of the scaphoid with the wrist in different degrees of rotation or by changing the angle of the central ray of the X-ray tube. A simple linear fracture without separation of the fragments is very easily overlooked even in stereoscopic films unless the central ray of the tube passes through the scaphoid in the same angle as the plane of the fracture. Fourth, if the first radiographic examination is negative and clinical symptoms persist, a second examination should be made within a week or ten days. At this time, due to the process of softening along the line of fracture incidental to healing, certain fractures will become evident on the X-ray film which were not visible shortly after the time of injury. If the above points are carefully carried out very few fractures of the scaphoid will be overlooked.

In certain positions a normal scaphoid may give the appearance of a fracture. This appearance is the result of the bone being in such a degree of rotation that the distal portion is somewhat foreshortened and appears to override the proximal portion. This produces the appearance of a notch on its inner surface.

In our opinion, a congenital bi-parte scaphoid is so rare that one does not have to consider it seriously as a practical possibility. In any event, a bi-parte scaphoid occurring in one wrist should not be considered as congenital. On the other hand, one finds that sub-divided scaphoids are a fairly common occurrence. Doubtless they all represent the result of some previous fracture which was undiagnosticated.

Untreated fractures of the scaphoid almost always result in non-union. One must be careful, therefore, in examining a wrist following a recent injury to be sure that an abnormal condition in the scaphoid is not the result of some old ununited fracture rather than the result of the recent trauma. The differential diagnosis between an old ununited fracture of the scaphoid and a recent fracture rests on a careful study of the adjacent surfaces of the fragments. The old ununited fractures invariably show induration of the bone along the line of fracture with

*For records and addresses of authors see "This Week's Issue," page 417.

smooth surfaces. A recent fracture, on the other hand, shows no induration of the bone and the characteristic irregularity of a recent fracture is usually present. Furthermore, old fractures show a definite space between the fragments. Many of the recent fractures, however, are in the nature of subperiosteal fractures and show no separation. In an old condition one or both of the fragments may show some degree of osteitis, characterized in the later stages by increased bone density and a change in its internal structure. We have found one of the most reliable pathognomonic signs of an old fracture of a scaphoid to be the proliferative bone change which takes place at the tip of the styloid process of the radius. In our experience, this change about the styloid of the radius invariably accompanies, sooner or later, all incomplete or partially united fractures of the scaphoid. It is possibly Nature's attempt to strengthen the wrist joint which has been weakened by the non-union of the scaphoid bone.

The admirable paper of Allan H. Todd and the splendid monograph of Kellogg Speed cover so thoroughly the statistics, mechanics and symptomatology of this injury, that it hardly seems necessary to do more than emphasize a few of the more important points. Undeniably, this type of fracture is practically always sustained through indirect violence. The hand is dorsi flexed and in ulnar flexion; the transmitted force passes directly through the scaphoid to the radius, viz: the resistance to the force is transmitted through a flexible lever formed by the third metacarpal, os magnum, scaphoid and radius. Now did the volar-carpal ligament, which is very tough and fibrous, give way, no crushing violence would be transmitted to the scaphoid, but such is not the case; hence the scaphoid at the point of acute flexion in the lever becomes the fulcrum and gives way.

In the examination of the scaphoid bone, one is impressed with the extent to which the radial articular surface encroaches upon the dorsal aspect of the bone; hence the dorsal ligament, although longer and weaker than the volar ligament, has, by necessity, a very firm broad and extensive attachment on the dorsal surface of the bone.

The presence of the scaphoid with its long diameter intact is very necessary in the mechanics of adduction and dorsi flexion of the hand, and it is in these motions that we find our patients complaining of pain in the fractures of this bone.

Speed tells us that the scaphoid has no nutrient artery; that its blood supply comes from a branch of the radial.

Hirsh states that cavity formation exists in the center of the bone as a result of this crushing type of fracture.

In a very small percentage of cases, fractures of the scaphoid do unite under the usual methods of treatment. It is an undisputed fact, however, that in the vast majority of cases the bone does not unite. Can it be that our method of treatment has been at fault or have we not interpreted properly the reasons for non-union? There is no doubt that in our personal experience, the routine measures of removal of a whole or a part of the bone have been unsatisfactory to the patient, as regards end-function. The symptom pain has been relieved, but a varying degree of weakness in the wrist has resulted. Perhaps the ordinary laboring man may adjust himself to this disability, but the patient who needs the full strength of the wrist in movements of precision is incapacitated for that type of work. Such a problem stimulated us to challenge a case of non-union of eighteen months' duration to a hitherto untried method of treatment, namely, bone-graft.

PLATE NO. 1

Wrist previous to operation eighteen months after injury. Note the slight proliferative bone change at the tip of the styloid process of the radius.

The patient, a prize-fighter by profession, had satisfied himself of his inability to pursue the manly art because every time he threw his hand into abduction in the so-called "hook" or forced his hand into dorsi flexion the pain was so intense as to compel him to drop his arm to his side or to drop to his knees. Obviously, he could not fight with the bone as it was, and in all honesty based on experience, if a whole or part of the bone was removed, he was told it would weaken his wrist to a point of inefficiency as a boxer. The dangers of traumatic arthritis, sepsis and the element of non-success were fully explained and he accepted the procedure we offered.

History.

Mr. E. E. Age 21 years.

The patient states that while playing football, two and a half years ago, he fractured his right patella, at the same time injuring the left wrist, which he did not report as he thought he had sprained it. Some months later, due to the pain on certain motions of the wrist, he sought medical advice. X-ray films were taken at this time which showed a fractured scaphoid of the left wrist. The hand was put up on a cock-up splint for six weeks. After removal of the splint, the pain persisted. He was advised to bake the wrist in hot sand and exercise it. This treatment was carried out faithfully without results. At present he complains of weakness in the left wrist, pain on dorsi and palmar flexion and on lifting any heavy object (see Plate No. 1), and excruciating pain on adduction and dorsi flexion.

Physical examination April 2, 1927.

Left wrist. No deformity present. Percussion test positive. Extreme tenderness on pressure in the Tabatiere. Dorsi flexion 15°. Palmar flexion 20°. Adduction limited and painful. Abduction normal and not painful. X-ray showed a transverse fracture of the scaphoid with proliferation of bone at the styloid process of the radius. There was also mobility of the fragments demonstrated by films taken in extreme adduction and abduction.

The usual approach was made through the dorsal incision. After exposure of the dorsal ligament, a careful inspection of this structure was made. It was found that this ligament had dipped down into the line of facture and become strongly adherent to the fractured surfaces of the bone. This fact is mentioned as a possible factor in non-union. The raw surfaces of bone were freed of this structure and the fracture very carefully defined. There was no cavity formation, but healthy bone surface. The surfaces of this bone were very carefully curretted with a small dental curette; great care was exercised not to traumatize, especially the adjoining carpal bones. The fracture was transverse at the margin of the articular surface of the radial end. It was,

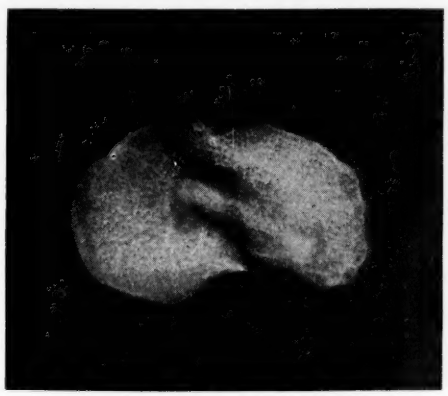

PLATE NO. 5

A fractured scaphoid, graft in place.

therefore, impossible to groove the proximal fragment for a graft as it would involve the articulation with the radius. A measurement was made for the graft and a small piece removed from the tibia. A small groove was made through the cortex of the distal fragment to the length of about ½ inch (Plate No. 5); the proximal fragment was then tipped back and a hole bored to correspond with the groove to receive the end of the graft. The graft was then cut to the proper length; the end placed in the hole in the proximal fragment and brought down into the groove. The hand was then brought into extreme adduction and flexion jamming the fragments together, this position was held firmly by an assistant. The wound was closed in layers. Skin closed with silk and plaster cast applied taking in the entire hand, especially the thumb.

PLATE NO. 2

Film taken immediately after the operation through the plaster cast. It also shows the radial flexion which seems to be the ideal position to hold the fragments in apposition.

PLATE NO. 3

Film made three weeks after the operation with the plaster cast removed. This film shows the graft in place with the fragments in good apposition.

The convalescence was uneventful. The cast was split at the end of a week and the hand X-rayed (Plate No. 2). The hand was left in the cast for six weeks when passive motions were begun (Plate No. 3) and continued each day with a light support on the hand and wrist for three weeks. All apparatus was then removed and light exercises and massage begun. The patient was allowed to punch a light bag and use dumb bells at the end of sixteen weeks. He entered his first fight six months after the operation and won it with a knock-out

PLATE NO. 4

Film made seven months after the operation shows fusion of the two fragments on the outer half of the fracture line.

with this hand. At the present writing he is free from all symptoms and considers his left hand as his most valuable asset. His only limitation of motion is dorsi flexion and that is increasing. The last X-ray (Plate No. 4) shows that there is bone across about one-half the diameter of the scaphoid. The patient has recently fought three times, two of which were knock-outs with the left hand, and is at the present time wholly unconscious of any weakness or symptoms in the hand or wrist.

This case is offered for what it is worth in the solution of this problem. The writers have refused to operate upon one other case, as they did not feel justified in this radical procedure without at least one success. The dangers of starting up a traumatic arthritis in the preparation of the graft bed are great. The writers feel that this case demonstrates, first, the feasibility of the position of adduction and flexion in fixation, as it impacts the fragments and also puts the posterior ligament under tension, and eliminates the possibility of its interposition in the line of fracture. Second, in cases of nonunion it offers a method of treatment worthy of trial, which if successful gives a wrist with better function than from our previous methods. Third, without complications no harm is done and if symptoms persist, excision may be done at a second operation. Fourth, accurate diagnosis by a competent Roentgenologist is essential. Fifth, fresh fractures may be treated by this method. This conclusion is based upon the fact that a very large percentage of cases fail to unite under the present methods of treatment.

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PLANS FOR A NEW BUILDING FOR TEMPLE UNIVERSITY SCHOOL OF MEDICINE

Announcement of a campaign to raise money to provide for a new building for the Medical School of Temple University has been made by President Beury. It is hoped that one million dollars will be contributed. The site for the building has been selected close to the Samaritan Hospital.

Applications for admission to the School have been far in excess of present accommodations.

If the ambitions of the friends of this School can be met the hope has been expressed that larger buildings with better equipment will warrant raising the present classifications of this School by the Council on Medical Education.

THE WATER TREATMENT OF INFANTILE PARALYSIS

The Medical Staff of the New York Hospital for the Ruptured and Crippled is planning for the installation of a swimming pool in which treatment of cases of infantile paralysis may be carried on. Pools have been in other places in operation in this treatment. The exercise of the affected limbs under water is made easier because of the relative specific gravity of water and the human structures which eliminates to some extent the antagonism of weight.

This treatment has been used in a limited way at the Boston Children's Hospital.

The cost of the swimming pool under plans by the Hospital For Ruptured and Crippled will be about seven thousand dollars.

VETERANS OF THE WORLD WAR SUFFERING WITH MENTAL DISABILITIES

The American Legion has made surveys of World War veterans during the past eighteen months and has found that mental cases are increasing rapidly.

The report carries the information that present hospital accommodations are quite inadequate to meet existing needs.

The Chairman of the Legion's Rehabilitation Committee reports that many sufferers with mental disturbances have been confined in city and county jails because of lack of facilities for treatment in well equipped hospitals. This is a reflection on this nation and the suggestion of the Legion should lead to prompt action for the proper care of these unfortunate veterans.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 14081

TWO WEEKS' FEVER AND WEAKNESS

MEDICAL DEPARTMENT

An Italian-American schoolboy of nineteen entered the hospital August 13 complaining of weakness, fever and sweating of two weeks' duration.

The illness began August 1 with pains in his back and in his muscles on motion, general stiffness and excessive sweating following six hours' hard work in the hold of a banana ship from Cuba. These symptoms lasted only a few days. The morning after their onset he developed intermittent frontal or occipital headache and stiff neck, which became worse for the next four days. He felt shaky, tired easily, sweat profusely and was weak. August 5 he went to bed because of weakness. Twice August 11 he had shaking chills. He had periods of feeling feverish at irregular intervals. He had a bad taste in his mouth, and marked thirst. His weight fell from 152 pounds to 147 in two weeks. On the day of admission a physician found his temperature 105°.

His mother and a grandfather died of heart disease.

He had always been well and strong. He had urinated once or twice at night for years. At sixteen, after having had cough with much greenish foul sputum for two weeks, he had a few ounces of "water" removed from his left chest, and was laid up for another week. A year before admission he had tonsillectomy and adenoidectomy. For the past two months he had had questionable blurring of vision. He denied venereal disease by name and symptoms. His habits and general hygiene were good except that a month before admission he drank from a well while blueberrying.

Clinical examination at entrance showed a fairly well nourished, pale boy lying comfortably. Skin dry, hot, subicteric. Sclerae subicteric. Deviated nasal septum, with a mass of soft tissue obstructing the right naris. Slight pyorrhea. Throat dry, congested, with a small amount of purulent material over the posterior pharyngeal wall. Tonsillar fossae inflamed. Tonsils small, buried. Lungs normal. Apex impulse of the heart visible and palpable 8½ centimeters from midsternum in the 4th left interspace. Midclavicular line 7 centimeters, left border of dullness 11 cm. in the 5th space, right border 3 in the 4th space, supracardiac dullness 7. Sounds and action normal. A soft systolic murmur over the pulmonic area. Pulses and artery walls normal. Blood pressure 90/30. Abdomen normal except for enlargement of spleen and barely palpable liver edge. Rectal examination, genitals, extremities, pupils and reflexes negative.

The day after admission another examiner found the patient very sick looking, sallow rather than subicteric, and "dopey". No headache or stiff neck. Mouth and tongue very parched. White exudate in right tonsillar fossa—food? Throat and nose otherwise negative. Neck vessels pulsating violently. Visible forceful pulsation of heart in 4th space just inside the nipple line. At apex and up left border of sternum a fairly loud blowing systolic murmur. Second sound doubled (protodiastolic rhythm). Sounds of only fair quality. Pulmonic second sound accentuated. Lungs negative to percussion with the patient on his side. Inconstant coarse moist expiratory râles at both bases posteriorly. Abdomen moderately distended, making palpation difficult; tympanitic, not tender. Spleen felt, liver not felt.

Urine normal in amount (patient incontinent), specific gravity 1.014—1.016, cloudy at 3 of 4 examinations, a very slight trace of albumin at all. A urine culture August 14 showed colon bacillus. Blood: 7,100 to 3,700 leucocytes, 90 per cent. polynuclears, many showing poor nuclear differentiation. Hemoglobin 55 to 40 per cent. Reds 4,500,000 to 3,000,000, with achromia, marked anisocytosis and poikilocytosis (checked up by vital stain), many large cells; one stippled cell seen. Platelets large, somewhat reduced in numbers, some groups. Wassermann negative. Icteric index August 13 about 100, August 15 on serum after protein had been precipitated by alcohol less than ten. Stools watery or soft. Guaiac slightly positive at one of four examinations. No macroscopic blood. No bile. Two stool cultures showed colon bacillus.

Temperature 103° to 106.4°, rectal. Pulse 100 to 140. Respirations 20 to 43.

The night of August 14 the patient was irrational and got out of bed. The next day he had two nosebleeds, the second quite profuse. There was some bleeding from beneath the gums. The red cells showed increased fragility. August 15 the visiting physician found no explanation for the jaundice, anemia or high polynuclear count by the diagnosis he considered most logical, and was inclined to disregard the anemia. Repeated blood counts continued to show it.

August 17 600 cubic centimeters of blood was transfused. That night the patient was delirious, requiring morphia. He did not take his feedings well, and showed slightly more distention. The morning of August 18 he appeared to

be nearly moribund, with slow and irregular respiration and tracheal râles. The abdomen was soft and not distended. The blood pressure was 122/50. The neck was very stiff. The knee-jerks were not obtained. There was no Babinski or Kernig. There was slight dullness over the left chest posteriorly and over the left upper chest anteriorly. In the latter region the sounds were very near the ear. Both lungs posteriorly were filled with coarse crepitant râles. Just outside the left nipple there was a palpable râle or rub. On auscultation this was found to be a very loud high-pitched musical sound filling all of inspiration. Expiration everywhere was prolonged.

The patient grew steadily worse. Fluids and feedings were given by nasal tube. Just after midnight August 18 he died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

When you hear that a person has had weakness, fever, sweating, and nothing else, what guess do you make as to the nature of the trouble?

Students: Tuberculosis. Acute infection.

Dr. Cabot: It sounds like infection. It is not acute. It may have been going on for more than two weeks. Then we ask what class it belongs to. Does it belong to the neoplastic, the infectious, the anaphylactic group, to the deficiency diseases, to the physicochemical or the surgical group? That is the most general classification one makes. The fact that this man came for these symptoms strongly suggests that he came for infectious disease. Of course it does not prove it. He could have had Hodgkin's disease, which is a neoplasm which gives you fever, sweating and weakness. But still, taking a hundred cases that begin that way perhaps ninety would turn out to be infection.

Cuba is the essential word in the opening sentence of the present illness. Up to that point we have nothing more than the evidence of infection. But we hear he comes from Cuba and we begin to think of certain common tropical diseases that we should not think of if he had been living here.

Going over the present illness—I still have no idea what is coming—I should still say we have evidence only of some general infection. I do not think we can say what infection until we get nearer to the end of the case.

A Student: It is not common to have chills with any infection?

Dr. Cabot: Not with any, but with many. Many people have a true shaking chill with nothing but a sore throat. Of course in pneumonia that is the custom, but not often in meningitis, although you often do get chilliness. With septicemia of the streptococcus group you very often get chills. With cardiac sepsis and with internal abscess, whatever its type, you get chills. So I should say a great many general infections begin with chills. I have not mentioned malaria, but of course we must think of that since he came from Cuba.

Now we must speculate as to what that illness was. If his sputum was really foul that is almost certainly evidence of lung abscess, either single or multiple or in the form we call bronchiectasis. If we were sure it was foul and had smelled it ourselves it would narrow down the evidence a good deal. We never see that sputa in tuberculosis or most of the other forms of cough with sputum. But he is only nineteen and that record is three years back.

That "water" removed from his left chest sounds like serous pleurisy; and serous pleurisy usually means what disease?

A Student: Tuberculosis.

Dr. Cabot: Yes, in the majority of cases. So we begin to wonder about that.

If that tonsillectomy and adenoidectomy had dated three years back we should think it was connected with the foul sputum. It is only a year back.

On the basis of the past history it is an infection, and unclassified, except that it rather suggests the lungs.

NOTES ON THE PHYSICAL EXAMINATION

The heart is a little higher up than we expect. We wonder if there is something below the diaphragm pushing it up. It is a centimeter outside the midclavicular line, which suggests some enlargement.

To sum up what we have so far, he had evidence of infection, a little bit of jaundice, a palpable spleen and liver, and it seems as if he had some enlargement of the heart. He has, if the record is correct, an extraordinarily low diastolic blood pressure.

"No headache or stiff neck." What does that tend to rule out?

A Student: Meningitis.

Dr. Cabot: Yes. There is evidence of sallowness of the skin, but not of the conjunctiva. Apparently the examiner did not think it any yellower than ordinary citizens have a right to have. Probably the yellow color did not come right up to the iris.

He has no headache and no stiff neck, so that our suspicions of meningitis begin to get less.

There are no heart murmurs, therefore no aortic regurgitation. What are the other causes of violently pulsating vessels aside from aortic regurgitation?

A Student: Anything that will cause the heart to beat very hard.

Dr. Cabot: Yes, but I mean a person in bed.

A Student: Anemia.

Dr. Cabot: Possibly.

A STUDENT: Exophthalmic goiter.

DR. CABOT: He has not got that.

A STUDENT: Arteriosclerosis.

DR. CABOT: Arteriosclerosis will do it sometimes, but anemia is the thing that seems to be the most probable of those that you have mentioned.

It is very hard to tell about accentuation of the pulmonic second sound, because people of nineteen have pretty loud pulmonic second sounds anyway.

"Inconstant coarse moist expiratory râles at both bases posteriorly." That is the sort of thing you would hear in any fever. I think they paid no attention to those râles. I do not see how we can either.

He was in the hospital only two weeks, so you see in the red cells a very rapid drop. Something was destroying his red cells with extraordinary speed. It is secondary anemia, not primary, if the blood is correctly reported.

"Icteric index August 13 about 100." That is nearly two weeks after the first observation. He certainly is jaundiced now.

They are thinking of typhoid, you see. That pulse rate is relatively high for typhoid. The respiration does not help us at all. You often have a high respiration in infections that are not pulmonary, for instance in meningitis, typhoid, septicemia. It is probably not typhoid with that chart.

The blood pressure is still high. There is more pulse pressure, more difference between systolic and diastolic, than there was before.

The lung signs would be very much more signifiant if it were not on the very day he died. It is not wise to put much emphasis on them. I suppose that high pitched musical sound was a râle.

Unless the visiting physician knew more about the case than I do he did not know what the diagnosis was up to this time.

DIFFERENTIAL DIAGNOSIS

I do not know what the diagnosis is. But let us make some speculations. In the first place he is a young boy, and we must think of the infections commonest at that age. Second, his illness ran its full course in about eighteen days, and shows every evidence of being an infection and no good evidence of being anything else. There is no evidence of neoplasm or of a physicochemical injury or of any other group of diseases. So I think our task is to say what the commonest infections are that run a course of eighteen days with continuous fever in a boy of nineteen and without obvious physical signs other than enlarged spleen, jaundice and anemia.

I looked up a thousand cases of continued fever in this hospital and found in a large proportion of these that when there was no particularly obvious physical sign it usually came out one of three diseases, typhoid, tuberculosis and sepsis, using the latter in a wide sense—streptococcus and staphylococcus infection either localized in the heart valves or associated with an obscure internal abscess or merely general. So on the basis of pure statistics this should be one of those three things. What else should we consider?

A STUDENT: Malaria?

DR. CABOT: I should say not, unless they have held back from us very obvious data. I think it would hardly be in the rules of the game to hold back the finding of parasites. And they would not have given us the case if they had found parasites. I think we can say it was not malaria because of the data given to us. It could be estivo-autumnal malaria on the facts here, if you add that they found a nest of parasites, because you do not have to have chills at all in that type of malaria. The queer thing would be that he was not comatose. I think we can rule out malaria.

A STUDENT: Benzol poisoning?

DR. CABOT: We have heard a lot about that recently. I do not know much about it, but I have never heard of a case with continued fever as high as this.

DR. TRACY B. MALLORY: Certainly none of the cases we have had here have had fever.

DR. CABOT: I do not think fever is a sign of benzol poisoning. Also we ought to have more leukopenia. I think we can rule it out.

A STUDENT: Yellow fever?

DR. CABOT: I have never seen a case so far as I know. We have had only one case in this hospital, and therefore I do not know much about it. I think it ought to be considered. Here is a man who is yellow and has a fever. As far as I know he might have yellow fever.

A STUDENT: Banti's disease?

DR. CABOT: No, because it is never fatal in eighteen days. It is a chronic disease. We have no such enlargement of the spleen. I should not consider it.

A STUDENT: How about trichiniasis?

DR. CABOT: That is a disease, so far as I know, always showing a characteristic blood except in chronic cases. This would be a very acute case certainly, and the blood is not characteristic. The eosinophiles are not increased. He ought to have a great deal more muscular tenderness than is spoken of here. Fatal cases are rare. We have no history of his having eaten uncooked meat, but he might have done that without our knowing it.

A STUDENT: How about influenza?

DR. CABOT: I do not see how it can be positively ruled out. One does not expect jaundice in influenza, but I am sure that there are cases showing jaundice.

A STUDENT: Are there fatal cases of influenza without signs of pneumonia developing earlier than this?

DR. CABOT: I do not remember one without obvious signs of pneumonia occurring earlier. Then the color of the face is against it. All the fatal cases I have seen have had a dusky gray color. Nothing of that kind is spoken of here. Usually there are much more definite upper respiratory symptoms in influenza. I cannot rule it out, but I think it is improbable.

I am coming back to my old trio—typhoid, tuberculosis, sepsis.

Typhoid I do not know how to rule out. We are not told anything about the Widal reactions. It may be they were positive. It may be there was a positive blood culture. We have to bear in mind the possibility that these data are withheld so as to give us more of a run for our money. The relatively high pulse which I spoke of is not enough to rule out typhoid.

A STUDENT: Would not that point to malaria?

DR. CABOT: I do not think it is malaria for reasons given.

A STUDENT: Do you get leukopenia in typhoid?

DR. CABOT: Yes; and he did have a leukopenia. But we have no right to have 90 per cent. polynuclears in typhoid. I do not know how it can be accounted for under that diagnosis.

A STUDENT: Would not the jaundice also be against typhoid?

DR. CABOT: One usually does not find so much jaundice. Yes, that is against it. So that there are three things against typhoid, the relatively high pulse, the high polynuclear count and the jaundice.

DR. MALLORY: I have here the results of the Widal reactions, Dr. Cabot. With the typhoid bacillus it was negative, with paratyphoid A it was strongly positive, and with paratyphoid B it was positive.

DR. CABOT: Anyone who believes this is paratyphoid can do so. I never heard of anyone's dying with paratyphoid. Therefore, those positive reactions to paratyphoid A and B do not sway me a great deal.

A STUDENT: Would not the heart rule out typhoid? He apparently had enlargement of the heart.

DR. CABOT: A big heart is against all the things we are talking about except malignant endocarditis. I do not think our evidence of big heart is first rate. I do not think it ever is good unless we feel the impulse is obviously displaced or unless we see it by X-ray. You never can be sure of it by percussion.

In favor of typhoid we have the kind of fever and the duration of fever, the general infectious symptoms, the abdominal distention, the enlarged spleen. Nothing is said about rose spots. In most cases of typhoid when you keep looking you find rose spots. They are really a valuable diagnostic point. Nothing is said about them here.

A STUDENT: Do most people with typhoid fever without perforation have tenderness in the abdomen?

DR. CABOT: Yes.

A STUDENT: But they speak of absence of tenderness there.

DR. CABOT: In most cases of typhoid there is only such tenderness as goes with distention. Anyone with distention tends to have tenderness, and in typhoid you do not have any more than is accounted for by distention.

A STUDENT: What caused the stiff neck?

DR. CABOT: I do not know. I do not believe he had meningitis, and he had stiff neck only at the very end. I am throwing it out, although it worries me a little.

A STUDENT: In how large a proportion of meningitis cases do you get a positive Kernig sign?

DR. CABOT: Very large. I should say certainly over ninety per cent.

A STUDENT: Does the loss of weight suggest anything?

DR. CABOT: No.

A STUDENT: Would not the typhoid bacillus occur in his urine in two weeks?

DR. MALLORY: It is apt to be positive at certain stages, usually after about the third week, and may be positive for several weeks afterwards, but in probably not more than twenty-five or thirty per cent. of the cases, I should say.

DR. CABOT: I cannot go any farther on typhoid. I cannot rule it out, but I do not think that is the diagnosis. It might be. I should not be surprised.

Let us take tuberculosis. It cannot be any obvious form of pulmonary or glandular tuberculosis. We should get the evidence on physical examination. There is only one form it could be, that is miliary. As you know, that is one of the things on which we go wrong most frequently. We are always missing it. Let us line up the evidence for and against miliary tuberculosis. For it is the fact that he has a fever. At one time he had râles in his lung, which we often find in miliary tuberculosis, but that is not much. The blood is compatible, more compatible than it is with typhoid. The spleen is perfectly compatible. The age is as common as any age I know of for miliary tuberculosis. I cannot rule it out. What are the points against it? In the first place in most cases, not all by any means, there is an old focus in the lung, gland, bone, kidney, from which the trouble starts. He may have a focus without our ever knowing it.

A STUDENT: He may have it from his possible pleurisy.

DR. CABOT: He might have had a focus in his lung that was not discovered. They had no X-ray, no tuberculin test. The second point is they were looking as hard as they could for everything and they ought to have noticed a certain degree of cyanosis. Miliary tubercles do

not give physical signs, but they often do produce cyanosis. The third point: most cases of miliary tuberculosis include the brain, with other organs, and when they include the brain there are generally more brain symptoms than this man had. He had some brain symptoms, stiff neck and headache at the end, but most cases have more distinct clouding of consciousness, delirium, or cranial nerve symptoms than he had. But all that I have just been saying is not enough to rule out miliary tuberculosis, and I am not ruling it out.

A STUDENT: What effect would jaundice have on cyanosis?

DR. CABOT: You can have the two at one time and recognize them. It is a queer color, but it is there. The presence of jaundice is a little against miliary tuberculosis. Few cases have it. That is all I can say about miliary tuberculosis. You know all the textbooks speak about tubercles seen in the choroid. We know that they are usually not found in cases proved to be tuberculosis. Of course if they had had any idea that he had this infection, they would have tapped his spinal cord. The fact that they did not leads me to believe that they did not think he had it.

On the whole I think it is the third of the things that I have considered, although I am not in the least sure of any one. I cannot rule out typhoid or miliary tuberculosis. But it seems to be more like a general septicemia.

A STUDENT: Why did we not get it on blood culture?

DR. CABOT: Even if it had been done and had been negative it is not important at all as negative evidence, especially if it was not taken during a chill. It has more chance of being positive then than at any other time. The white blood count is low for septicemia, but a considerable minority, I should say ten or fifteen per cent., have these low counts, and we account for them by saying that the organism is overwhelmed by the virulence of the infection, as in peritonitis, in diphtheria, and in pneumonia. I have to say this is one of the cases that has an overwhelming infection and drives down the white count, usually leaving the polynuclears increased.

In favor of sepsis is jaundice, hemolytic anemia, high polynuclear count and that is all, as far as I know. There are fewer negative points against sepsis than there are against the other two, but it is not a clear case at all.

A STUDENT: How about the spleen?

DR. CABOT: It goes perfectly well with any one of the three I am considering.

A STUDENT: Do you suppose this could be a septicemia endocarditis?

DR. CABOT: Yes, that is a good point. If we regard this as the form of septicemia which is associated with vegetations in the heart valves we can easily understand the heart's being enlarged. The queer thing about that, though, is that it ought not to enlarge within eighteen days. I do not think a heart ever does.

A STUDENT: Could this be a malignant pericarditis or adhesive pericarditis?

DR. CABOT: Yes.

A STUDENT: How about the blurring of vision that he had had for two months?

DR. CABOT: I do not know what to say about that.

A STUDENT: It might be consistent with miliary tuberculosis.

DR. CABOT: I think it is consistent with any of the three. I am looking for differentiating symptoms.

A STUDENT: Does the term acute endocarditis imply septicemia or not?

DR. CABOT: Yes, I think so. I believe there are always organisms in the blood. We might get nothing more than a systolic murmur and a slightly enlarged heart. It is perfectly possible that this is acute endocarditis. I have not said that it was because we have no evidence of embolism and no blood culture. It might perfectly well exist without embolism, and one can miss the blood culture.

A STUDENT: Why could you not include typhoid septicemia?

DR. CABOT: I wanted not to consider things that happen once in a blue moon.

A STUDENT: I mean septicemia caused by typhoid.

DR. CABOT: That is just typhoid. By septicemia I mean infection due to one of the organisms of the streptococcus or staphylococcus group. I think it is streptococcus of some type. That is my best guess.

DR. MALLORY: The blood culture showed bacillus typhosus.

I ought to apologize for that, but it would not have been a discussable case with that information, of course.

BACTERIOLOGICAL REPORTS

BLOOD CULTURES

August 13. Bacillus typhosus in two flasks.
August 15. Bacillus typhosus in two flasks.

URINE CULTURE

August 16. Bacillus typhosus.

WIDAL TESTS

August 15. Typhoid showed clumping but no motility. Paratyphoid A negative. Paratyphoid B positive.

August 18. Typhoid negative. Paratyphoid A strongly positive. Paratyphoid B positive in two flasks.

STOOL CULTURES

August 14 and 16. Bacillus typhosus negative. Colon bacillus positive.

CLINICAL DIAGNOSIS

Typhoid fever.
Secondary anemia.
Bronchopneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Septicemia, streptococcus, or
Typhoid fever, or
Miliary tuberculosis.

ANATOMIC DIAGNOSIS

Typhoid fever.

DR. MALLORY: It was a perfectly straight case of very acute typhoid infection from the pathological point of view, with most of the typical findings.

The spleen was an enormous one for typhoid, weighing over 800 grams. The intestines showed marked enlargement of the solitary follicles, and Peyer's patches beginning about in the mid-jejunum and running down to the ileocecal valve. I have here a specimen of the intestine. The swelling is not so marked now as it was when the specimen was fresh. In putting it into formalin one inevitably gets considerable shrinkage. But you can see a Peyer's patch here that is nearly three inches long and an inch and a half wide, with slight sallow ulceration in the center.

There was nothing in the heart. It was not enlarged.

There was bronchopneumonia, which showed both typhoid bacilli and various cocci in the microscopic sections. One occasionally gets bronchopneumonia in typhoid cases showing purely typhoid organisms, but very frequently one also gets a secondary terminal bronchopneumonia due to pneumococci or streptococci.

His very markedly increasing anemia and the peculiar morphology of the red cells led to considerable interest as to what his bone marrow would show. It was a very bright red, extremely hyperplastic marrow that microscopically showed marked hyperplasia of both the red cells and the white cell forming elements, with a few megaloblasts and very numerous myelocytes. There is very little literature on the bone marrow in typhoid. I do not know how this checks up with the usual findings. In general I think one expects hypoplasia rather than hyperplasia.

DR. CABOT: What was the diagnosis of the visiting physician?

DR. MALLORY: Typhoid fever.

A STUDENT: Would this be compatible with paratyphoid?

DR. MALLORY: It is much too severe for an ordinary paratyphoid. I believe there have been cases as severe as this, particularly during the war in France, but they are most unusual.

I think almost certainly there must have been a mistake in that Widal reaction. After eighteen days the Widal should have been positive. The stool cultures were done repeatedly and were always negative.

DR. CABOT: I think that is a matter of real importance, because here is an extraordinarily acute case of typhoid with very marked intestinal lesions. One occasionally gets it without any intestinal lesions. Naturally then one ought not to be surprised to find negative stools. But here in spite of massive lesions in the intestine we were unable to pick up a single organism in the stool cultures.

A STUDENT: How about the heart?

DR. MALLORY: The heart was negative; not enlarged. It was simply pushed upward by the abdominal distention. Possibly the big spleen had a little effect.

DR. CABOT: You see in this case the sort of evidence on which I get skeptical on cardiac percussion.

A STUDENT: How about the blood pressure?

DR. CABOT: I have nothing to say.

A STUDENT: Did you ever see a case of typhoid like this before?

DR. CABOT: I do not remember. If I ever did see one I have forgotten it.

CASE 14082

THE OBVIOUS DIAGNOSIS MAY NOT BE THE WHOLE STORY

SURGICAL DEPARTMENT

First admission. A German of fifty-two entered the hospital March 16.

Five months before admission he had an attack of intense knife-like pain in the right upper quadrant radiating to the shoulders, requiring opium. Following it he was in a hospital for seven weeks and in bed for three weeks more, with distention, belching of gas and a feeling of uneasiness in the epigastrium at intervals. Two months later he had a second attack similar to the first but less severe, with jaundice, clay-colored stools and dark urine. March 13 he had a third attack. Pain, distress and jaundice had persisted. Since the onset of the illness he had lost much weight.

His family history is good.

He had measles, scarlet fever and diphtheria in infancy and running ears for seven years. The hearing in his right ear was poor. His general health had always been very good except for an occasional "bilious attack" when he was constipated. Twelve years before admission he weighed 186 pounds; his usual weight was 174 and his present weight 159.

On clinical examination the skin and sclerae were icteric. The heart showed extrasystoles; no other abnormalities. There was marked tenderness in the upper quadrants, particularly to the right of the midline, with slight resistance.

Urine and stool examinations showed bile.

Icteric index 20. Coagulation time 20 minutes. Leukocyte count 13,000.

March 17 operation was done. He improved slowly. April 5 he was discharged.

History of interval. At his second admission he gave no account of his condition until the middle of November. Then he had pain in his side similar to the pain before the operation, but less severe. This gradually increased. Three days before his readmission he had very intense headache starting in the occipital region and settling in the forehead, constant though varying somewhat in intensity and making him a little dizzy. Accompanying or immediately following the onset of this there was onset of aphasia, numbness of the right hand, and rapidly increasing blurring of vision. On the day of admission he found he could not move this hand. In giving the history he wandered a little and repeated himself. Although there were some minor inconsistencies in his story it was thought probably to be in general reliable.

Second admission, November 21, six months and a half after his previous discharge.

On clinical examination he was still well nourished, lying on his right side with his knees drawn well up, occasionally groaning in pain. The skin was subicteric. The sclerae were normal. The left ear drum showed a white deposit on the anterior half, light reflex somewhat dulled, vessels over malleus engorged. The patient complained of tenderness on examination. The throat was somewhat red, with some patches of lymphoid tissue. The tongue showed a dirty black coating about its middle. There were a few pea-sized anterior cervical glands. The heart was not remarkable. The radial arteries were barely palpable. Blood pressure 150/95. Both sides of the abdomen showed rigidity, most marked in the epigastrium, which was tender throughout, most markedly just to right and left of the midline. Palpation of the viscera was impossible because of rigidity and muscle spasm.

Neurological examination showed the following positive findings. Vision of both eyes blurred. Fingers counted at three feet. Visual fields done roughly with light and fingers suggested a right hemonomous hemianopsia. The patient was not entirely reliable however. Right ear, watch not heard even when touching ear. Left ear, watch heard at one inch. Air conduction less than bone in both ears. Weber's test* referred to the right ear. Memory for both past and recent events clouded. This fact he himself realized. He was slow to react and respond, but when he concentrated he could do so very well. He had partial aphasia which cleared up somewhat in the hospital. No hemianopsia of half an object satisfactorily made out; on one occasion when shown a pitcher he said he saw only half of it, but more detailed questioning brought out the fact that he saw the other half also but saw it blurred. He felt a sense of numbness in his right arm but nowhere else. Grips about equal, possibly slightly weaker on the right. Epigastric and abdominal reflexes absent on the right, sluggish on the left. Cremasterics normal. Biceps, triceps and pronators active in the arms, possibly slightly greater on the right. Questionable Babinski on the left. No Gordon, Oppenheim, Kernig or clonus. No sphincter disturbances on admission. November 22 he developed urinary incontinence.

*Weber's test. A tuning fork held against the vertex is heard best by the sound ear if deafness is due to disease of the auditory apparatus, by the affected ear if deafness is due to obstruction of the air passages.

Before operation amount of urine not recorded, urine dark, cloudy, specific gravity 1.030, occasional red and white blood cells in the sediment; no bile. Blood: 19,900 to 15,600 leukocytes; 85 per cent. polymorphonuclears, hemoglobin 55 per cent., reds 3,880,000, smear normal. Wassermann negative.

Before operation temperature 98.4° to 101.3°, pulse 80 to 105, respirations normal.

A lumbar puncture was done by a student November 21 in the fourth to fifth lumbar space and 15 cubic centimeters of clear colorless fluid removed, initial pressure 250, pulse and respiratory oscillations and rise on cough prompt and adequate; combined jugular pressure 390 to 295, left 300 to 260, right not obtained; 2 cells; alcohol and ammonium sulphate negative.

The patient was seen in consultation by a surgeon, who thought that an abdominal operation would be necessary. The tenderness in the liver region increased. Fluoroscopic examination November 22 showed the chest clear. The diaphragm moved evenly on both sides, but the excursion was small. The abdomen was filled with gas. The patient was too ill to be placed in the proper position for skull plates. The examination was very unsatisfactory. Another examination November 25 showed the diaphragm high on both sides and its respiratory motion limited. It was not fixed on either side. Its outline was somewhat irregular. The costophrenic sinus on the right was hazy. Just above the diaphragm on the left there was a wide irregular line of increased density, perhaps representing consolidation. The heart shadow was obscured by the high position of the diaphragm. There were a few calcified glands at both roots. The outline of the liver was not visible.

The patient grew more sluggish and continued to have much pain and great tenderness. The scar became dusky red and there was an area of redness the size of a hand extending two inches above to two inches below the umbilicus over the old scar region on the right side.

November 23 operation was done. November 26 the patient was in coma and had right facial paralysis. The right arm reflexes were greater than the left. The next day there was little response to pin-prick. Babinski was present on

both sides. The left arm and leg showed thrashing movements. The right arm and leg moved on pin-prick but showed little spontaneous activity. The reflexes on the right side were brisker than those on the left. The left fundus showed no choking. It was impossible to see the right (media dull).

A lumbar puncture done November 26 gave 15 cubic centimeters of pinkish fluid of exactly the same color in both tubes; initial pressure 140, combined jugular compression 350/120, right jugular 140/140, left jugular 250/140; after the withdrawal of 5 cubic centimeters 80. There was no rise after right jugular compression although it was tried five times. Left jugular compression was satisfactory twice. The fluid showed 278 lymphocytes, 3 polymorphonuclears, 1,280 red cells.

November 28 a second operation was done. The following night the patient had Cheyne-Stokes respiration and the temperature reached 105.2°. A blood culture showed staphylococcus aureus. November 30 he died.

Discussion

BY EDWARD L. YOUNG, JR., M.D.

This is as clear a picture as one could ask of trouble in the biliary tract. But that tells us only a small part of the story, because trouble here can be due to various causes. The commonest cause of trouble in the biliary tract that is characterized by severe pain, by obstruction to the flow of bile into the intestine, as evidenced by clay-colored stools and bile in the urine, is stone. But we must remember that the type of obstruction which generally is painless, namely carcinoma, can occasionally cause attacks with pain and evidence of biliary obstruction which was not there before. That is unusual, but it can be present.

The only thing to do in the face of a situation like this is to assume the common cause for trouble and to treat it in the only way we know, and that is operation, to find the cause of obstruction and when possible remove it.

His coagulation time of twenty minutes should mean that he had three days' treatment by intravenous injection of calcium chloride to try to lessen the risk of hemorrhage. In spite of the fact of the delay of coagulation time, the blood change as shown by laboratory test does not necessarily spell hemorrhage after operation, any more than a normal coagulation time and blood study give us freedom from hemorrhage after operation.

Bearing in mind the possibility of some of the abnormal causes, I see no other diagnosis to put first except cholelithiasis, and the treatment, operation. The fact that he has lost weight does not necessarily spell anything more than upset digestion because of biliary tract disease and poor absorption of food.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Cholelithiasis.

PRE-OPERATIVE DIAGNOSIS

Acute cholecystitis.

OPERATION, FIRST ADMISSION

Ether. The usual right rectus incision. The pyloric end of the stomach, the duodenum and the omentum were adherent to the gall-bladder with pork-like adhesions. It was impossible to separate any adhesions except the omental. The gall-bladder was found to be deeply imbedded in the liver. There was no attempt at its removal. An incision was made in the under surface of the gall-bladder and a large number of stones were removed. The gall-bladder was full of pus and its walls were thickened. It was impossible to feel either the cystic or the common ducts on account of adhesions. A rubber dam was sutured in the gall-bladder and a cigarette wick was inserted.

Further Discussion

Of course there is adequate cause here for the trouble that we have read about, and there is adequate cause for jaundice in the obstruction to the common duct from adhesions. But of course, leaving the story as they did, without investigating the common duct, still leaves the possibility of stone present.

Dr. Cabot: Didn't the state of things found at operation present a very disagreeable situation for a surgeon?

Dr. Young: It is an extremely difficult problem, because the attempt to go to the point of finding out what is the situation in the common duct may kill the patient or may cause a permanent obstruction to the duct from the damage done.

There are two separate situations. Whether or not they can be united under the same cause is a question. He did not have a removal of the gall-bladder, so that further stone formation can take place. Of course this gall-bladder was badly damaged, and consequently stone formation is more likely than it would be if the walls had been comparatively normal and had been left behind. Moreover there was a possible error in the leaving behind of something in the biliary ducts. So that the reappearance of his pain strongly suggests the recurrence of at least inflammation, and with the amount of inflammation that was there a recurrence of inflammatory edema and swelling would mean obstruction and more pain, so that we are not obliged to assume stone.

Just on the story alone I do not see how we can connect the other damage, to the central nervous system.

The blood pressure was perfectly normal for him.

I am entirely incompetent to say what these various neurological findings mean.

To me this spells two things,—central nervous system damage and a recurrence of trouble in the biliary tract, an acute inflammatory upset with possibly a spreading to the pancreas, because it mentions specifically here that tenderness extends to the left, and that is always suspicious of the spread of trouble into the pancreas with a known infection in the biliary tract. Inasmuch as I believe this is an infectious process from what we know at previous operation, and not a malignancy, the only way in which central nervous system disease has localized would be a spread of the infection with brain abscess. That seems to me a long shot, as we see such cases.

The white count and the temperature back us up in the belief that there is an acute infection starting in the biliary tract.

The fluoroscopic examination would tend to rule out subdiaphragmatic abscess as a localization of the infection.

It seems to me that the only thing to do is to give relief to this infection which seems inevitable.

I do not see that we have any direct evidence of infection except in the region of the old operation, and suggested by the X-ray beginning in the base of the left lung. I should assume that the thing to do was to make an incision through the old scar, and from the last note here, of redness in the scar, I should doubt that it would be necessary to go into the gall-bladder again in order to find pus. I shall not be at all surprised if there is evidence of pancreatitis also.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Acute infection of the biliary tract.
Brain abscess?
Acute pancreatitis?

X-RAY INTERPRETATION NOVEMBER 11

The examination suggests a pathological process below the diaphragm.

PRE-OPERATIVE DIAGNOSIS NOVEMBER 23

Empyema of the gall-bladder.

FIRST OPERATION, SECOND ADMISSION

Local novocain. The upper portion of the previous right rectus incision explored. Pus was found before the fascia was divided, as it had already dissected out underneath the skin. The layers of the abdominal wall were incised and a cavity about three inches deep with a smooth wall which felt like a gall-bladder was entered. A rubber tube about the size of a forefinger was inserted into the abscess cavity for drainage. The wound was left open.

FURTHER DISCUSSION

In other words, there was spreading of the infection through the tissues along the line of least resistance, because a scar is always the line of least resistance. Practically always pus will burrow out through that rather than go through normal tissue.

DR. CABOT: My guess is that there ought to be a sinus thrombosis.

DR. YOUNG: I assume that they went after infection in the skull.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Brain abscess.

PRE-OPERATIVE DIAGNOSIS NOVEMBER 28

Left parietal lobe abscess?

SECOND OPERATION, SECOND ADMISSION

Local novocain. A small trephine opening was made in the left temporal region and enlarged to permit needle exploration in various directions. The bone was normal. The dura showed no inflammatory signs and was not under increased tension. The cortex appeared normal, there being no signs of increased pressure. Exploration with the ventricular needle in various directions failed to reveal any abscess.

FURTHER DISCUSSION

The general diagnosis that I made in the first place I cannot amplify, that is, the recurrence of infection in the old operation from the biliary tract and the spread of that infection to the central nervous system, and then according to the blood culture a septicemia of staphylococcus aureus. I hope Dr. Mallory will not say that he did not examine the head.

DR. TRACY B. MALLORY: We did.

DR. YOUNG: I do not believe there is anything in the X-ray plates that I can interpret.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Brain abscess.
Cholecystitis.
Right upper quadrant abscess.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Cholecystitis.
Acute pancreatitis?
Brain abscess.
Septicemia, staphylococcus aureus.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion.*

   Adenocarcinoma of the pancreas with metastases.

2. *Secondary or terminal lesions.*

   Abscess of the abdominal wall.
   Bronchopneumonia.

Staphylococcus aureus septicemia.
Infarct of the spleen.
Chronic cholecystitis.

3. *Historical landmarks.*

Choleliathiasis.
Pancreatic stones.

DR. MALLORY: The post-mortem findings in this case were quite unusual and surprising. In the abdominal wall was the operative incision, which opened into a large pus-filled cavity lying between the rectus sheathes and replacing one segment of the rectus muscle, which had completely sloughed out. From the base of this a fistulous tract had spread down into the gall-bladder, which was greatly shrunken, the walls thickened. Two stones were left.

The surface of the liver showed obvious metastastic carcinoma. The primary lesion was found in the pancreas, which presented quite an unusual picture. You remember that the pancreas has two "anlages," one which comprises the head, body, and tail, and the other a small portion of the head, one supplied by the duct of Wirsung and the other by the duct of Santorini. In this case they were almost separate. The duct of Wirsung was entirely negative. The duct of Santorini was dilated, the wall greatly thickened, and it contained several pancreatic stones. The entire portion of the head was entirely changed over into carcinoma, which had not invaded in the slightest degree the lower portion of the pancreas.

There were metastases everywhere, a great many on the surface of the lungs, and where gross metastases were not found during life the microscope showed innumerable very minute ones. For instance, numerous glomeruli in the kidney showed metastases consisting of only four or five tumor cells, just filling one capillary. There was an infarct in the spleen, and although we were not able to demonstrate the cause of that, I suspect that metastatic tumor cells may have been at the base of it.

The brain findings were very few. There was the scar of the operation and of the various puncture wounds made with the exploratory needle, and on the right side, just external to the right ventricle, there was a small area of softening. That is the opposite side from what the neurological symptoms in general suggested. We found nothing on the left side, no tumor or abscess.

DR. YOUNG: Would that area of softening be enough to account for the symptoms as given?

DR. MALLORY: It hardly seems as though it could account for a good many of them. Nearly all his symptoms have suggested the left side of the brain, the weakness in his right hand, and so on. I have no explanation for that.

DR. YOUNG: There was no reason to believe that this carcinoma was based on the previous biliary tract disease,—chronic irritation in the biliary tract?

DR. MALLORY: No. The common biliary duct was negative and the duct of Wirsung negative. The duct of Santorini of course had a separate outlet from the duodenum. I imagine the carcinoma was secondary to the inflammatory changes and obstruction of this duct.

DR. CABOT: Were the sinuses free?

DR. MALLORY: Yes. There was, however, a terminal septicemia and a slight degree of bronchopneumonia.

PROTEST DISCHARGE OF CHICAGO HEALTH COMMISSIONER

As an aftermath of the dismissal of Dr. Herman N. Bundesen, former Health Commissioner of Chicago, and his replacement by Mayor Thompson's personal physician, a surgeon with no public health training, a public statement has been issued by the most prominent figures in public health work in the United States, protesting against the influence of politics affecting the public health and welfare of the people at large.

The statement which bears the signatures of eminent persons, including two university presidents, reads in part:

Permanence of tenure for competent health officials is an absolutely essential factor in the protection of the public against preventable disease; and the case in question seems particularly flagrant in view of the extraordinary record of Doctor Bundesen, whose brilliant services have aroused nation-wide admiration. Sacrifice of the lives of citizens of Chicago to political exploitation and personal whims is more than a local matter, since unsanitary conditions in one community may react upon an entire continent.

The action of the Mayor of Chicago strikes a blow at the most fundamental principles of good government. It should meet with prompt and vigorous rebuke from all people of Chicago who care for the reputation of their city and it should stimulate citizens everywhere to see that city charters are amended so as to make such interference with good health administration impossible in their own communities.

Among those who signed the statement are: Haven Emerson, M.D., Professor of Public Health Administration, Institute of Public Health, College of Physicians and Surgeons, Columbia University, New York City; Livingston Farrand, M.D., President, Cornell University, Ithaca, N. Y.; William H. Howell, M.D., Director School of Hygiene and Public Health, Johns Hopkins Hospital, Baltimore, Md.; Matthias Nicoll, Jr., M.D., State Commission of Health, Albany, N. Y.; William H. Park, M.D., Director, Bureau of Laboratories, Department of Health, New York City; Samuel C. Prescott, S.B., Head, Department of Biology and Public Health, Massachusetts Institute of Technology, Boston, Mass.; George E. Vincent, Ph.D., President, Rockefeller Foundation, New York City; Ray Lyman Wilbur, M.D., President, Leland Stanford University, Palo Alto, Calif.; C.-E. A. Winslow, Dr.P.H., Professor of Public Health, Yale University; and Frankwood E. Williams, M.D., Medical Director, National Committee for Mental Hygiene, New York City.—*Mental Hygiene Bulletin.*

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JOSLIN ON DIABETES

ELLIOTT P. JOSLIN, M.D.—which should signify Master of Diabetes—has in this issue of the JOURNAL a paper on ideals in the treatment of diabetes which should attract the attention and set to thinking the mind of every practitioner who has to do with this disease.

The intelligent use of insulin has without question revolutionized the treatment of diabetes and made possible the achievement of practical diabetic ideas, even if they do not yet include the cure of the disease. Health and diabetes are now compatible; youth and diabetes are now compatible; old age and diabetes are now compatible; coma before the advent of insulin, but now even more so is an unnecessary complication, resulting only from carelessness or ignorance on the part of patient or physician. The present *bete noir* of diabetes is arteriosclerosis, and arteriosclerosis is the result of an overabundance of fat in the tissues or in the diet.

An example of the dangers of a high fat diet is quoted from the *American Journal of Medical Sciences*. A mild diabetic with onset at the age of 45 years was studied for 13 years. On a low carbohydrate high fat diet his weight rose in his last 5 years of life from 97½ to 174 pounds. In coma 100 units of insulin was almost ineffective. At autopsy his arteries showed marked fatty infiltration and his tissues were literally steeped with fat.

"It is from an excess of fat in the tissues, I believe," Dr. Joslin continues, "diabetes most commonly begins, and from an excess of fat in the tissues, or diet, diabetics, whether human or canine, died formerly of coma, but today, at least so far as humans are concerned, of premature arteriosclerosis."

Insulin was ineffective in this patient mentioned, and this patient had edema. Insulin works most effectively in the dry patient, less effectively in the wet one, and cholesterol always holds back water in the body.

Dr. Joslin does not believe in the unbalanced, high fat diet; he believes that it predisposes to arteriosclerosis. He believes in a safe average carbohydrate intake of 100 grams, with a minimum of insulin, and voices the undeniable truth that the diabetic watched lives, but the diabetic neglected dies.

THE RESPONSIBILITIES OF THE HOSPITAL STAFF

THE development of hospitals throughout all the larger towns and in many rural communities has been of tremendous advantage to physicians as well as to the public. The improved facilities, the opportunity for laboratory study, the concentration and systematization of work are obvious advantages. But aside from this is the great gain incident to contact among physicians. The patient is not the sole gainer from consultation and conference. The welding together of the physicians of any community into a hospital staff puts in their hands a power and influence which they may use or neglect as they determine.

The duties of a hospital staff are primarily to give to each individual patient the best possible care. But secondarily they must give to house officers and to medical students if any and to their associates all the benefits they can of their knowledge. Equally important is the duty to cooperate with the Trustees in doing all in their power to extend medical knowledge and aid in the maintenance of health.

The success of a hospital staff depends upon its ideals, its co-operation and its ability to work for progress with the trustees and the public. Much depends upon the organization of the staff and the executive committee of staff and trustees.

The actual details of administration rest, of course, upon the superintendent, who must in turn be responsible to an executive committee. Meetings of the staff should be held at regular intervals for the discussion of professional topics. At these meetings administrative mat-

ters may also be considered. One or more representatives of the staff should meet with the executive committee of the trustees. It makes little difference whether these staff representatives have or have not a vote. Their influence must be exerted by convincing the lay members of the executive committee of the wisdom and reasonableness of the policies they advocate. If they can only convert a minority of the lay members of the board to their viewpoint it is usually unfortunate to force a policy by turning the scale through staff votes. In general the influence of the staff members is fully as great without a vote as with one.

The Staff must convince its Trustees that a stationary condition is always one of relative retrogression. There are always new needs in a modern hospital. This does not mean that every passing fad must be adopted but that whenever real progress is made the advantage must be seized.

The hospital must be made the centre of all health activities in the community it serves. The public must be instructed upon matters of health, by Staff and Trustees acting in co-operation. The hospital in the community must play as important a part in civic life as did the church in early colonial days. But there must be no division of influence. There can be no more certain method of dealing with cults and quackery than by the concerted action of the physicians of a hospital staff co-operating with the trustees to make the hospital fulfill all its functions as fully and ably as possible.

HOSPITAL SERVICE IN THE UNITED STATES

The Journal of The American Medical Association for March 24 contains an extremely valuable section of 72 pages which comprises the seventh annual presentation of hospital data by the Council on Medical Education and Hospitals. This year, for the first time, in addition to the annual presentation of statistical data, the Association's first Hospital Register is published.

This section contains the story of 6,807 hospitals and sanatoria built and maintained by various groups, and more than 80,000 physicians who supply them with medical services. It is notable that an almost unanimous response was elicited from more than 6,700 hospitals as a result of a questionnaire sent out by the Council. In all, 6,807 hospitals have been admitted to the Register. Of these 1,543 are unconditionally approved by The American College of Surgeons, and of these 1,543 hospitals, 609 are approved for interne training, and 292 for residencing in specialties. A group of 462 institutions are not admitted to the Register for various reasons.

According to types of service rendered, the registered hospitals are divided into general hospitals, nervous and mental hospitals, those for tuberculosis, maternity hospitals, industrial hospitals, hospitals for convalescence and rest, isolation hospitals—which are increasing in effectiveness although dwindling in volume—children's hospitals, eye, ear, nose and throat hospitals, orthopedic hospitals, skin and cancer hospitals, hospital departments of institutions and others.

According to ownership or control they are divided into government owned hospitals (whether federal, state or local), church hospitals, fraternal hospitals, industrially owned hospitals, individual and partnership institutions and independent organizations.

Following an exposition of the requirements for the list of approved hospitals is published the actual register, and the section ends with a list of approved clinical laboratories with their essentials defined.

The Council on Medical Education and Hospitals, in preparing these lists, has undertaken a great labor but one of great value, not only in providing available and useful information, but in setting minimum standards of excellence for hospitals and laboratories.

SUGGESTIONS AND AN ANNOUNCEMENT

Boston has long been proud of the character and solidarity of its medical profession. We have been singularly exempt from cliquishness; almost always able to unite in the promotion of a good cause and free from the petty jealousies and bickerings that often befog the professional atmosphere of certain communities. Some would doubtless attribute this to a kind of provincialism about which they are pleased to chide us. If that be the cause it has had its compensations. In all probability the small geographic distribution of the bulk of the profession has had something to do with the cultivation of this desirable state of affairs. As our institutions have enlarged, our public health problems increased, the fields of professional activity narrowed and the number of doctors has grown there is greater divergence of interests and individuals find it more and more difficult to maintain those intimate contacts which characterized the less complex relations of a generation ago. The time is coming here, and its advent has been anticipated by the more far sighted, when some concerted effort must be made to devise machinery, whereby the unification of all our public health and professional activities may be continued. The incorporated state Medical Societies of New England are appreciating this and the idea has found expression in the Council of the New England States Medical Societies and in the adoption of a new name and a wider scope for this Journal. In other metropolitan centers notably New York, Cleveland and Brooklyn this endeavor has been realized in the form of an Academy of Medicine. It is true that this suggestion has been broached here not so many years ago but the times were not ripe

for it then. It is also true that in effect some of the advantages of an Academy are being provided by one of our medical institutions today but with nothing of the efficiency which the idea is capable of generating under the auspices of an incorporated organization. Many helpful kinds of service could be rendered the local and visiting profession were such an institution in existence. As an illustration of this and in the hope that the service which the Boston Medical Library now offers may emphasize in a small way the advantage of a medical center for Greater Boston we would call attention to the fact that the Library receives each morning by nine o'clock the lists of operations to be performed on that day at the Boston City, the Deaconess, the Free Hospital for Women, the Massachusetts General and the Peter Bent Brigham Hospitals. A telephone call to Kenmore 1617 will supply information covering the operative work of the day.

THE AMERICAN MEDICAL EDITORS' ASSOCIATION

A STATEMENT of the history and purpose of the association appears on page 420.

As a record it has historical value and the fact that two New England men have been presidents of the association will be of especial interest in this section. The organization was active and influential in its earlier existence. The plans under way as set forth in the article indicate ambitions to make the organization an important factor in medical affairs.

If the association succeeds in its purpose with respect to standardizing medical education, medical licensing examinations, international reciprocity and the various other subjects under consideration as set forth in the announcement it will demonstrate an influence and force greater than most people believe to be possible in an organization of this type.

The suggestion that medical journals should be endowed is alluring and may be a worthy ambition, but we feel that medical journalism may to advantage be largely restricted to publications conducted by national, state and special societies with supplementary bodies engaged in scientific work such as the research organizations under the Foundations, Medical Schools and Hospitals.

The Independent Medical Journal may continue to flourish but the field is well occupied at the present time. It is extremely unlikely that large funds will be contributed to support medical publications which are not already endorsed or adopted as official organs by reputable organizations.

There are always opportunities for conferences among those engaged in serious work and the personnel of the American Medical Editors' Association gives promise of creditable activities but we hope that it will not attempt to duplicate work now being well done by other organizations.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

JOSLIN, ELLIOTT P. A.B., M.D. Harvard Medical School, 1895. Consulting Physician to the Boston City Hospital; Physician to the New England Deaconess Hospital; Clinical Professor of Medicine, Harvard Medical School; Member of the American Society of Clinical Investigation. His subject is: "Ideals in the Treatment of Diabetes and Methods for Their Realization". Page 379. Address: 81 Bay State Road, Boston.

DEWIS, JOHN W. A.M. Honorary; M.D. Harvard Medical School, 1894. Clinical Work 1906-7; Assistant Physician Boston Dispensary Out-Patient Department, Appointed 1927. Address: 270 Commonwealth Avenue, Boston. Associated with him is:

MORSE, GEORGE W. A.B., M.D. Harvard Medical School, 1908. F.A.C.S. Surgeon in Charge, Brooks Hospital, Brookline; Medical Director of the Institute of Technology. Address: 475 Commonwealth Avenue, Boston. Their subject is: "Primary Adenocarcinoma of the Duodenum". Page 383.

ADAMS, JOHN D. M.D. Harvard Medical School, 1902. F.A.C.S. Orthopedic Surgeon-in-Chief, Boston Dispensary; Consulting Surgeon, Beverly Hospital; Jordan Hospital, Plymouth; Memorial Hospital, Brattleboro, Vt., and Sisters Hospital, Waterville, Me. Address: 43 Bay State Road, Boston. Associated with him is:

LEONARD, RALPH D. A.B., M.D. Harvard Medical School, 1910. Consulting Roentgenologist in the Brooks, Malden, Melrose and Cambridge Hospitals. Formerly Instructor in the X-ray Department of the Boston City Hospital; and in the X-ray Department of Tufts Medical School. Address: 43 Bay State Road, Boston. Their subject is: "Fracture of the Carpal Scaphoid". Page 401.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Foster S. Kellogg, M.D., *Chairman* — Frederick L. Good, M.D., *Secretary*
Frederick J. Lynch, M.D., *Clerk*

What is the treatment of Hemorrhage of the Newborn?

The treatment of hemorrhage of the newborn whether it be due to trauma or the hemorrhagic diathesis may be considered under two heads; general measures, designed to maintain the general welfare of the child; and speci-

fic measures aimed particularly to control hemorrhage and replace lost blood.

It occasionally happens that the general measures are inadvertently neglected in the strict pursuit of the specific. The more important items of general treatment follow: *Rest.* Handling should be reduced to the minimum and should be done with utmost gentleness. The baby should be protected from noise and strong light and should be isolated from other babies. The control of convulsive movements should be attempted by the administration of chloral by mouth or rectum and by the performance of lumbar puncture to reduce intracranial pressure. *Maintenance of body heat:* It is very important to keep the body heat of hemorrhagic babies at the normal level. To secure this the quilted "premature jacket" and heaters of various types may be employed. *Prevention of dehydration:* The great fluid loss in this condition further aggravated by the problem of feeding the baby by mouth makes it necessary to resort to frequent injections of solutions of glucose or normal salt into the rectum under the skin or into the peritoneal cavity. *Feeding:* This is a very important element in the care of the hemorrhagic baby. If possible to obtain it breast milk should be used. If the baby swallows the problem is simplified, although administration of the food by medicine dropper, Breck feeder or nasal tube may be necessary. If the baby does not swallow, feeding by gavage should be used.

Specific treatment of hemorrhage of the newborn resolves itself at present into the use of blood or blood elements for the purpose of increasing the coagulability of the blood of the infant. While good results have been reported from the use of animal sera and preparations of hemostatic and coagulating substances, human blood whole or citrated is the remedy par excellence for hemorrhage of the newborn.

Because of its availability, ease of administration and safety, whole blood should be the agent of first choice. It may be given intramuscularly or subcutaneously. Amounts of less than 20cc are of little value. Injections should be repeated every four to six hours until the hemorrhage appears to be definitely controlled. Transfusion of whole or citrated blood is technically difficult except to the expert and in cerebral hemorrhage may aggravate the symptoms by increasing intracranial pressure.

A very important and frequently neglected phase of the treatment is the prophylactic administration of whole blood to potential cases of hemorrhage of the newborn. The infants of toxic mothers; premature babies; those born of long, hard or dry labors or by operative delivery or from contracted pelves; and the children of mothers who have had other hemorrhagic babies should be given injections of whole blood as soon after delivery as possible.

Questions of a similar nature to the foregoing will be discussed in the JOURNAL each week. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

BOSTON MEDICAL LIBRARY

ALEXIS OF PIEDMONT, HIS SECRETS

THERE has apparently always been a call for books of household remedies. Many of those living today in the country have recollection of such works or at least have heard of their existence and use. At a time when doctors were relatively less easy to find than they are today and the family exchequer did not permit of their being called for every trivial ailment it was natural that there should be a greater call for such books. They seem to have helped to fill in the gap between the advent of a more scientific practice of medicine and the disappearance of the "medicine man" and his ilk. Absence of means of communication and slow methods of transportation, both of which factors put mankind more upon their own resources, made such treatises a great boon. They anticipated by a considerable time the "house physician" in a modern hostelry, perhaps in some cases without any greater jeopardy to the patients' chance of recovery. In the 16th century or thereabouts these books were commonly called, as this one is, "*Secrets*".

This particular one was printed for William Warde and dedicated by him to the Right Honorable Lord Russell, Earl of Bedford. It was a translation of an Italian work by the same name, the author of which was Alexis of Piedmont. The date of the English printing was 1562. It had been already translated into French and Dutch. It contains in the first part chiefly, remedies for various derangements of the health but also directions for the making of many things useful for the housewife to know. These works appear to have been inspired by rather different motives than the translations of Culpepper and Salmon, the celebrated "irregular practitioners" who were seeking to exploit themselves quite as much as to serve the public, though the latter was their avowed aim.

The legend at the head of the first paragraph gives the keynote of the book. It reads as follows: "The manner and secret of conserving a man's youth and of holding back old age and to maintain a man always in health and strength, as in the fairest flower of his age." He then proceeds to give minute directions for compounding remedies to relieve various symptoms which he describes briefly; an example or two will suffice. "A perfect and proued remedye for them that be weake of stomake, and can not

kepe theyr meals wythout vomityng it up agayne."

There are recommendations for the cure of stone in the kidney or bladder, sores and wounds of all kinds, "the rage" or hydrophobia, etc. I presume the following is for Phthisis! "Against the greefe in the lunges and spitting of bloud, a thyng experimented."

After reading this book one better understands the therapy of our Allopathic progenitors and appreciates the very great service Hahneman and his followers rendered mankind when they brought out the "high dilutions" principle of their Pharmacy.

For those who are interested this volume will be on exhibition during the week of April 16th.

INFANTILE PARALYSIS

The study of Epidemiology should attract more attention and more fully occupy the thought of men engaged in the practice of medicine than it does. It has been well within the memory of men in the mid period of life that this disease has taken on its epidemic character.

In 1900 there had been only two reports of cases of this sort in numbers which drew attention to this departure from its previous sporadic nature. One had occurred in the 80's in the Otter Valley in Vermont and the other in Gloucester. About the same time attention had been called to this same thing in Sweden. In the Vermont epidemic there had been about 130 cases and they were thought at first to have been Cerebro Spinal Fever. In Gloucester there were 66 cases and several of them had been diagnosed at first as Sunstroke that is before the paralysis appeared.

What the conditions are which make possible such a radical transformation in a disease from one which is sporadic with no mortality into one which is widespread and carries a high mortality not seeming to be checked by anything except absence of material upon which to feed, is certainly worthy of persistent investigation.

One's thought naturally wanders back to the days of primitive man in seeking for an analogy. Our very remote human ancestors lived off the forests and streams and so long as food supply was plentiful they kept the peace and grew strong and virile. If they were thrown into conflict with neighboring tribes the survivors owed their preservation to their greater vigor in fighting men. If short rations or famine threatened they might easily fall from their high estate. Conflict was habitual for them. Could we know as much about the natural history of bacterial life it is possible we might learn much which would be helpful to our understanding of the vagaries of epidemic disease. It is to this phase of the subject of Infantile Paralysis and not to its surgical or serological management that the resources of the Library would invite your attention during the week of April 16th.

THE DOCTOR'S SADDLEBAG

THE GOOD PHYSICIAN

Disciples of Aesculapius, in the last few decades, have seen many changes take place in the form and character of the professional activities to which they are, in the main, devoting their lives. Medicine was originally, in its entire conception, the healing art; in an endeavor to promote the success of this function many of its devotees, from the earliest times, have added to it the function of investigation. Others, urged on by a compelling curiosity, even if with no practical end in view, have made investigations into anatomy, into physiology and into chemistry either the main activity of their lives or at least a very important part of it.

Generally speaking, however, in his own eyes, in the eyes of his colleagues, and in the eyes of the world—which is more important—the physician was essentially the practitioner. His experience blossomed most fully only when it was put to the practical test of alleviating suffering; his knowledge bore its best fruit only when it was directed towards the care of the sick. The good physician was seen and recognized as such in the consulting room, in the sick chamber and on the hospital ward. It was in this character that he exhibited and gave to mankind the results of his studies and of his investigations, if he had made them, which were carried on more obscurely. Honored indeed were those who were equipped by training and by disposition to bring forth the fruits of their original work and lay them on the knees of their fellow men; no less honored were those who simply availed themselves of the opportunity to put into practice each new discovery and to utilize, in a practical form, the fund of fresh knowledge which was constantly accruing to them as a result of the labors of those whose peculiar talents enabled them to add to the general fund of knowledge.

The Fifth Estate—that select group of intellectual laborers whose field of activity is the realm of pure science, and who have inherited it by a sort of divine right—will always have honor among us, and of a high order, but always, perhaps, it will be passed by, by the hurrying feet of the world which is looking for immediate results and for practical results; which has little use for theory and which sees its ideals only when the clouds are torn away or when emotional stress temporarily dissolves them.

We must not be blinded by the fact that the world at large is composed of common mortals; that it is not highly intellectual; that it has few visions; that it wants results of a practical nature, and that it is more sensitive to the humanities and to the emotionalism of everyday life than it is to deductive reasoning. The appeal of pure science leaves it cold. There is no stigma attached to it for this; it is the world, and we, if we believe that we are on a different

plane, must guard our footsteps; it is not the world that is queer; it is ourselves.

The modern development of science and the modern development of medicine led more and more into the laboratory, and quite rightly the laboratory and the results of its workers began to assume a position of great importance in our eyes. More and more space began to be developed in our medical schools for scientific investigation, and more and more our hospitals began making over their storerooms, their garrets and their cellars into abodes for the muse that sings of bacteriolysins and colorimetric calibrations. The young man with his footsteps hesitating on the threshold of professional life was often lured into these abodes of the intellect and saw in them a shelter, for a time, and perhaps permanently, from the cold realities of practice, of dollar competition and of individual aggressiveness.

Learned societies came into being and the seats of the mighty became occupied by those who, intrigued by science and the demoralizing intoxication of publication, and blinded to the one obvious goal of Medicine—the application of knowledge to the alleviation of suffering—saw but one royal road to preferment. The result of this has been, in our day, the engendering of a false and warped attitude towards the practice of medicine. The laboratories have wooed and won, not only those pure searchers after truth whose workshops they should be, but many young men, unsuited in temperament, with the fires of inspiration forever unkindled, who should be doing yeoman service in the front lines, rather than sacrificing innocent and costly laboratory animals on the ash-choked altars of scientific Mammonry (if such a phrase may be coined).

No other vocation than medicine has raised these false standards of service. The lawyer, successful, useful and honored, is he who practices his profession with honesty and serves his community as a public-spirited citizen should. The upright merchant gives value received for his goods, upholds his church and works for civic betterment. The true physician may or may not investigate the causes of disease, according to his bent, but if his bent is not in that direction equal honor, equal dignity and equal worth is his if he practices his profession with diligence and ability and gives of himself to his patients and his community. He is the good physician.

MISCELLANY

LUNCHEON IN CONNECTION WITH THE CANCER CAMPAIGN

Dr. W. A. Evans, of Chicago, Professor of Public Health at Northwestern University Medical School, and well known health columnist; Dr. I. D. Rawlings, Commissioner of Health of Illinois; and Dr. A. H. Kegel, Health Commissioner of the City of Chicago, will speak at a luncheon being arranged by the State Department of Public Health at the Hotel Statler, on Monday, April 23rd, at 12:30. The Cancer Campaign, inaugurated jointly by the Massachusetts Medical Society, the American Society for the Control of Cancer, and the Department of Public Health will be opened in Boston by a public meeting at Symphony Hall, at which the Governor will speak, and by meetings in other cities that evening.

This luncheon is called in order that in advance of the campaign, professional groups may have an opportunity to meet these distinguished visitors. Such public health workers as practicing physicians, staffs of boards of health, nurses, social workers, nutritionists and the like who are interested in attending may obtain tickets by writing to Room 546, State House, Boston, and enclosing a check for $1.50 made out to Dr. Mary R. Lakeman, who is organizing the meeting for the Department.

In addition to a discussion of cancer control, other vital public health problems will be touched on. The Department will welcome suggestions from those planning to attend as to subjects of particular interest alhough there is no guarantee that the suggestions will be accepted.

AMERICAN MEDICAL EDITORS' ASSOCIATION

(FOUNDED IN 1869)

PRESENT ACTIVITIES AND PAST HISTORY

With the death of the last President, Dr. Henry O. Marcy, the American Medical Editors' Association became inactive and remained so for five years. At the time of Dr. Marcy's death, one hundred and seventeen editors were on the roster.

Early in January, 1928, the present President, Dr. H. Lyons Hunt, called a meeting of a few of the New York editors to discuss the advisability of reviving the Association. The vote of those present was unanimous that this should be done.

That a need was felt for the Organization, can best be demonstrated by the fact that not only practically all members of the old Association came in, but over one hundred new members made application, so that today the American Medical Editors' Association is stronger and more powerful than it has been in its entire history.

As the organization swung into power, numerous meetings were held, officers elected and committees appointed to study and promulgate a tentative platform representative of the American Medical Editors' Association. Just how the entire Association will stand on these subjects, will largely depend on the information gleaned on each by the committees appointed.

That the Association is functioning with enormous activity, is shown by the fact that committees have been appointed to study and advocate a stand for the Association on the following subjects: "Medical Journal Endowment Fund." (This is a rather new idea but there seems no reason why medical schools and hospitals should receive endowments while medical journals and those who run them, often at considerable personal sacrifice, should not look to share in a central endowment fund. Certainly the medical journals constitute one of the greatest forms of medical instruction and teaching in the country and through the profession are of untold value to the health of the nation.)

Committees have been formed to study ways and means of "Standardizing Medical Education" and "Standardizing Medical Licensing Examinations." "Bringing About International Medical Reciprocity." (Four Committees, one in Canada, one in the States,

one in England and one in France have already been appointed to study this subject.)

Committees to study "Workman's Compensation," "Pay Clinics," "Commercial Laboratories," "Open Hospitals," "Medical Compensation," "Drug Store Prescribing," "Pharmacy and Therapeutic Products," "Electrotherapeutic Apparatus," "Prohibition."

Committees on "Legislation," "Advertising," "Publicity," "Policy," "Public Health," "Medical Economics," and so on, all studying certain questions and working out solutions for the problems involved, for the advancement and elevation of the medical profession and of medical journalism.

The officers of the American Medical Editors' Association are working with might and main for the benefit of its members and deserve their full support through the Journals they edit in advocating the policies the Association stands for.

PAST HISTORY

In 1869, the editors of medical journals in the United States, desiring to cultivate professional courtesies, to facilitate the conduct and general management of their journals, to promote their interests, their usefulness, and make them a still greater power for professional and popular good, and especially to advance the interests of medicine, united together and organized the "American Medical Editors' Association."

The idea originated with Dr. Theophilus Parvin, who at that time was Editor of the *Western Journal of Medicine*. The first meeting has held May 6th, 1869, at which time a preamble and articles of association were presented. At this first meeting, Dr. N. S. Davis, editor of the *Chicago Medical Examiner* and the father of the American Medical Association, was elected President.

The annual meeting for 1870 was held at Washington, D. C., at which time Dr. Horatio R. Storer, editor of the *Journal of the Gynecological Society* was elected President, for 1870-1871.

The meetings for the years 1870-1871 were devoted to Committee Reports, et cetera, with the exception of the adoption of a resolution introduced by Dr. N. S. Davis to the effect that "The social, educational and scientific interests of the profession would be greatly promoted by a more complete organization in every State and district in our country, such organization being calculated to not only elicit but diffuse knowledge, and also to afford the most efficient means of promoting concerted action on all important questions of medical education and progress."

For the years 1871-1872, Dr. B. F. Dawson, editor of the *American Journal of Obstetrics* was President, and under his administration a resolution was introduced offering an annual prize of $100 for the best essay on some subject to be decided upon at each annual meeting, the competition to be open to all members of the Society.

Dr. Theophilus Parvin, editor of the *Western Journal of Medicine* and the originator of this Society, was elected President to serve during 1872-1873. Dr. W. K. Bowling, editor of the *Nashville Journal of Medicine* served as President 1873-1874. 1874-1875 found Dr. W. S. Edgar, editor of the *St. Louis Medical and Surgical Journal*, serving as President. He was succeeded in 1875-1876 by Dr. A. M. Bell, editor of *The Sanitarian*. This meeting was devoted exclusively to the reading of papers advising a higher standard of requirements for admission to the profession of medicine, the outcome of which was a resolution advocating and advising a three years' course in medicine, and indorsing a preliminary entrance examination for students.

1876-1877, Dr. Horatio C. Wood, editor of *The Medical Times*, was chosen President. He was followed in 1877-1878 by Dr. J. C. Gray of Utica, N. Y., who presented at his presidential address, a paper upon "Lunacy Laws" endorsing and advocating a change of the statutes governing the management of the insane by our public institutions. As the result of the agitation created by his address, many changes were made in the laws of various States in accordance with the suggestions embodied in his paper.

Dr. William Brodie, editor of *New Preparations*, presided as President in 1878-1879, at which time he presented a paper upon "Duty, Scope and Destiny of American Medical Journals," and it is to be regretted that the archives of our Society do not contain a copy of his address, for it would be interesting to know how well he prognosticated the condition existing today, as well as how we have met his ideals of duty and scope. At this meeting a resolution was passed as follows: "We condemn the advertising of nostrums, patented and copyrighted articles in our journals."

In 1879-1880, Dr. S. T. Powell, editor of the *Southern Medical Record*, served as President. For a number of years following this meeting, the Minutes of each session are so incomplete, that no facts of interest are obtainable, however, from a few fragmentary scraps in the possession of the Society, we judge the social feature of the Association was paramount.

The records show that Dr. I. N. Love, editor of *The Medical Mirror*, served as President in 1890-1891. Dr. F. L. Sim, editor of *The Memphis Medical Monthly*, 1891-1892. Dr. Frank Woodbury, editor of THE BOSTON MEDICAL AND SURGICAL JOURNAL, 1892-1893. Dr. J. C. Culbertson, editor of *The Lancet-Clinic*, 1893-1894. Dr. C. H. Hughes, editor of *The Alienist and Neurologist*, in 1894-1895. Dr. John B. Hamilton, editor of *The Journal of the American Medical Association*, 1895-1896. Dr. Geo. M. Gould, editor of *Medical News*, in 1896-1897. Dr. Hobart A. Hare, editor of *The Therapeutic Gazette*, 1897 and 1898. Dr. Thomas H. Hawkins, editor of *The Denver Medical Times*, 1899-1900. Dr. Alexander Stone, editor of *Northwestern Lancet*, 1900-1901.

It was not until the meeting of 1901, under the presidency of Dr. Alexander J. Stone, that the Society took on any semblance of a regularly prepared program of papers presented.

At the next meeting, Dr. Winslow Anderson, editor of *The Pacific Medical Journal*, was chosen President for 1901-1202. From 1902 until 1907 the history of our Association is within the memory of us all. Through untiring energy and hearty coöperation of Dr. C. E. de M. Sajous (Sajous Encyclopedia) President for 1902-1903; Dr. H. N. Moyer, editor of *Medicine*, President 1903-1904. Dr. Henry Waldo Coe, editor of *The Medical Sentinel*, President 1904-1905. Dr. James Evelyn Pilcher, editor of *Journal Association of Military Surgeons*, President 1905-1906, and Dr. C. F. Taylor, editor of *The Medical World*, President 1906-1907, the membership in the Association was increased from forty-two names to 193 editors,

representing 122 medical journals, the best of all the medical journals in both the United States and Canada.

Among the other well-known medical men who devoted themselves to the interests of the Association and the ideals it stood for, serving in the Presidential Chair of the Society, were Dr. T. D. Crothers, editor of *The Quarterly Journal of Inebriety*, 1907-1908. Dr. W. A. Young, editor of *Canadian Journal of Medicine and Surgery*, 1908-1909. Dr. J. MacDonald, editor of *American Journal of Surgery*, 1909-1910. Dr. Walter Wyman, 1910-1911. Dr. Thomas L. Sredman, editor of *The Medical Record*, 1911-1912. Dr. E. A. Vander Veer, editor of *Albany Medical Annals*, 1912-1913. Dr. H. Edwin Lewis, editor of *American Medicine*, 1913-1914. Dr. Edward C. Register, editor of *Charlotte Medical Journal*, 1914-1915. Dr. Geo. M. Piersol, editor of *American Journal Medical Sciences*, 1915-1916. Dr. Geo. W. Kosmak, editor *American Journal of Obstetrics*, 1917-1918. Dr. Seale Harris, editor *Southern Medical Journal*, 1918-1919. Dr. H. S. Baketel, editor *Medical Times*, 1919-1920. Dr. Frank C. Lewis, *International Journal of Medicine and Surgery*, 1920-1921. Dr. Henry O. Marcy, editor *Annals of Anatomy and Surgery*, 1922-1923.

The American Medical Editors' Association took an initiative part in shaping the policy of the medical profession as an organized body and its influence for the elevation of medical standards. The effort to elevate the standard of preliminary education for those desiring to take up the study of medicine. The necessity for a comprehensive list of the names of regular practitioners, with their schools and date of graduation. The State and district organization. Agitation for a three years' course at medical colleges and a preliminary entrance examination for students. Changes in our lunacy laws regarding the handling of the inmates of our public institutions. Condemnation of nostrums and patent-medicine advertising.

The American Medical Editors' Association was the source from which many reforms for the advancement and betterment of the medical profession sprang, as well as ideas some of which did not take concrete form until nearly forty years after their promulgation.

RECENT DEATH

ROLLINS—Dr. Edwin Theodore Rollins died at his home in Jamaica Plain after a long illness, March 30, 1928, at the age of sixty. The son of Fitzhugh Smith Rollins and Augusta Lavinia Hanson Rollins, he was born in Newton, Mass., had his education in the schools of his native town and at Harvard Medical School where he received his M.D. in the class of 1902. After serving as house officer at the State Infirmary at Tewksbury for a year and a half he settled in Jamaica Plain.

During the World War Dr. Rollins was examining physician for the local draft board, serving with Judge Murray and Judge Leverone, and at one time he was head of the Red Cross for the Jamaica Plain district. He also had been chairman of the Parents' Association. He was a member of the American Medical Association, Massachusetts Medical Society and the Norfolk District Medical Society, and he belonged to the Daniel Hersey Lodge of Odd Fellows of Jamaica Plain. At one time he was president of the Eliot Club of Jamaica Plain.

Dr. Rollins is survived by his wife, who was Susan Gerrish of Chelsea, and by two daughters.

CORRESPONDENCE

THE STATUS OF THE INJURED WORKER INSURED UNDER MASSACHUSETTS COMPENSATION LAW

It may be helpful to refer to House No. 300—1911 signed by a commission reporting in 1911 with the following membership: James A. Lowell, Amos T. Saunders, Magnus W. Alexander, Henry Howard and Joseph A. Parks.

"Compensation Laws are founded on the principle that the whole community for which production is carried on should bear the burden of *all the costs of production* and that the cost of an industry in life, limb and human suffering should be met by some system of insurance and then charged against society as consumers of the product of industry."

Section 30 of the present law says: "During the first two weeks and in unusual cases, or cases requiring specialized or surgical treatment, in the discretion of the department for a longer period, the insurer shall furnish the employee adequate and reasonable medical and hospital services." The law also requires equal service when the employee selects his own physician. While the law places a part of the burden for lost time on the worker, he is guaranteed adequate and reasonable and necessary hospital and medical service from the time the injury is received. The act in no way suggests that this service is to be measured by the size of his weekly wage or his economic status, or that the insurer or the consuming public are entitled to charity rates for hospital service. The worker who takes the risk of losing his life, of being permanently maimed by the loss of an eye, a hand, an arm or a leg, is to receive the needed medical and hospital service to save his life if possible, and rehabilitate him as far as possible.

The report of the Department for 1926 shows that while there were over 116,000 reported accidents, over 74,000 received medical service only and that over 54% of the tabulatable injuries were within the two weeks' period. Every sense organ and member of his body is the worker's own to be cherished and jealously guarded as his life's capital.

An insight into the risk the worker takes is shown by the report of the Accident Board for 1926, the latest published. There were 313 deaths and 1158 with a permanent partial disability. These deaths were not immediate but followed simple abrasions, or cuts, numbering over 31,000 resulting in 31 deaths, 21 from infection. Nearly 17,000 fractures and sprains resulted in 109 deaths, while unclassified accidents resulted in 126 deaths. As the result of 1127 injuries there were the amputation of 84 eyes, 55 hands, fore arms, or arms, and 21 feet or legs.

Is not the lowest paid worker suffering from any of these injuries entitled to a personal, intimate, responsible and reasonably paid medical service? For less serious cases outside the hospitals and for prearranged private service in a hospital, medical service is paid for, but for this most serious group of cases demanding time, skill and personal respon-

sibility in a hospital, the plea is made that neither the hospital, or staff doctor, should charge the insurer, or the consuming public more than the patient can personally pay if he is not insured. From 40 to 45 per cent. of the population of Massachusetts belong to the wage earning, self supporting, self respecting group. Their earnings support 65% of the population.

Is it conceivable that the Massachusetts Legislature which has grown so considerate of the susceptibilities of those seeking public aid because of poverty, that the name *pauper* has been stricken from the official record, would subject this large group of industrial workers to the necessity of seeking charity from community hospitals either for hospital service or medical care? When emergency cases are given first aid for humane reasons must the trustees defend their rights when they classify patients protected by insurance as not eligible for either a charity hospital service or free medical service from the staff? The burden of caring for these patients no longer rests on the worker unaided, but on the consuming public, not merely local, but nation and world wide in its ramifications.

Acceptance of charity is an indication of dependence or greed. Should the injured worker be compelled to accept either? Under the law the worker surrenders his common law right against both the employer and the physician. In its place the burden of his care is placed elsewhere, with the guarantee of the State Law that the insurer shall furnish adequate and reasonable medical and hospital service. To claim that under the working of the Compensation Law, the insured worker still retains his former economic status, dependent often on private charity, is to confess the law a failure. If the law was not passed to aid the worker as its most important feature for whose benefit was it enacted?

The popular conception of its workings is well expressed by the Special Commission of 1926, reporting to the Legislature of 1927. P. 5. "The principles of Workmen's Compensation are today almost universally accepted as the proper basis for relieving the misfortunes resulting from industrial accidents and doing justice to injured employees."

P. 6. "Workmen's Compensation is an exchange of the injustice of employer's liability laws, with their irresponsible verdicts, their legal technicalities, too often inviting the interference of lawyers, and their delays, too often amounting to denials of justice; for a speedy administrative determination of the merits of each case. It is likewise an exchange of the uncertainties of employer's liability laws with their incalculable and therefore intolerable burden of industry for the calculable and predetermined expense of compensation and *medical care* which therefore may be counted among the annual expenses of industry and passed on to the product."

To illustrate the status of the worker protected by insurance and one without it, let us suppose that John Jones, Jr., breaks his leg, he alone being responsible. The police ambulance takes him to the nearest hospital. The staff doctor, Timothy Trusting Dexter, named for a puritan ancestor, sets his leg. By inquiry the hospital authorities classify his financial ability to pay his bills. If J. J. J. is able to pay both hospital and medical charges, most community hospitals recognize the right of the doctor to charge a fee. If J. J. J. is eligible for partial or full charity, or public charity, the staff doctor voluntarily contributes his services gratis. If J. J. J. breaks his leg working for an employer protected by insurance both the hospital and the staff doctor claim the right to collect from the insurer, reasonable charges for adequate service. Does the fact that J. J. J. *uninsured* received charity treatment, warrant the conclusion that his status *insured* entitles the insurer to the benefit of an equal charity? The insurer is paid to protect him from the financial burden of his accident and the worker has earned his right to a paid service by suffering his accident.

The law applies and the department acting under it, rules on questions affecting the *insured* worker, not the *uninsured*. Insurance of every kind is designed to lift the burden of accident, loss or misfortune. The charity extended by most charity hospitals comes not from the general public, but from voluntary contributions held in trust for some specific purpose. The law, as hospitals and the medical profession interpret Sec. 30, transfers the burden resulting from accidents incident to production, from the shoulders of the individual worker, who was previously often obliged to seek charity provided by the few, to the consuming public. Under conditions prevailing in Massachusetts during 1925, this burden would average $.20 for $100 worth of manufactured products. See data, Annual Report of the Department of Labor and Industry for 1926, page 56. Also Annual Report Insurance Commissioner Part 11, 1926, page 122, table Y.

The viewpoint of a majority of the hospitals of the State doing industrial work is shown by replies received from a questionnaire sent out last December by a Committee of staff doctors from South Middlesex District Medical Society, and from information from staff doctors connected with hospitals not reporting. These replies disclose the fact that, excluding the teaching hospitals and a few large municipal hospitals where conditions render it difficult for staff doctors to render a direct personal service, 33 hospitals located in the largest industrial cities now classify patients protected by insurance as private or semi-private. There are 12 hospitals in the industrial towns doing the same thing. About 10 more are considering such action by their respective trustees at the present time. There are 10 or more small hospitals not heard from. That this classification is the only fair one for the small hospital without an intern service and where the staff doctor must give a personal service, is generally recognized by both hospital trustees and staff doctors. In its practical working most insurance companies recognize this fact.

"G. M. B." (M.D.)

THE AMERICAN MEDICAL ASSOCIATION CONFERENCE ON PUBLIC HEALTH

(From Our Regular Correspondent)

April 3, 1928.

Clinics, health demonstrations, and public health surveys were discussed in what, to an impartial observor, seemed like a somewhat truculent manner at the second annual conference on public health called on March 30 and 31, 1928, by the Board of Trustees of the American Medical Association. The meeting, held in Chicago, was attended by nearly 100

persons, including a large number of executives of national voluntary health agencies and foundations promoting health demonstrations, State health officials, and a few physicians. The only representatives from New England were Dr. Stanley H. Osborne, State Health Officer of Connecticut, and Professor I. V. Hiscock, as delegate from the John Hancock Life Insurance Company of Boston.

The conference was opened with an excellent analysis of free and pay clinics by E. H. L. Corwin, Ph.D., of the New York Academy of Medicine. Dr. Corwin suggested that a duty was owed to society by the maintenance of free clinics for that small percentage of individuals who are unable to afford private medical care. This paper was followed by one on the same subject by Dr. L. L. Bigelow, president of the Ohio Medical Society. After some remarks about doctors of philosophy and their qualifications to discuss medical subjects, Dr. Bigelow launched into a fiery denunciation of clinics where individuals of favorable economic capacity were accorded free treatment. He characterized such a system as one which tended to pauperize the people and sovietize the nation.

About a dozen persons discussed these two papers in a rather vigorous and at times vehement manner. Alleged selfishness of physicians was criticised, and the exploitation of clinics was decried. The altruism of the medical profession was praised and the value of clinics was asserted. State medicine was declared by some to be a bugaboo, and by others to be a real menace.

The scope, functions, and methods of the four health demonstrations of the Commonwealth Fund were next set forth in an interesting and thorough manner by Mr. Courtenay Dinwiddie. After he had finished, Dr. George Smith and Dr. Charles Keller related incidents which, in their opinions, had occurred in connection with another health demonstration, at Mansfield, Ohio, and which they believed had had a tendency to react to the detriment of the medical profession.

In the slightly torrid discussion which ensued, several speakers, including Dr. L. R. Williams, Mr. Homer Folks, and Mr. John A. Kingsbury described the difficulties of the Milbank Memorial Fund health demonstration in Cattaraugus County in securing the coöperation of the medical profession there.

The paper on public health surveys by Dr. R. G. Leland of the Bureau of Health and Public Instruction of the American Medical Association brought out a number of significant facts, but did not elicit much controversial discussion. Dr. Leland pointed out that during the past twenty years 3781 surveys on 56 different public health subjects had been made by 30 national organizations, 42 State boards of health, and 48 individuals. Of these, the largest number had been conducted by the United States Public Health Service with 1921 to its credit.

Harmony eventually succeeded the early violence of the meeting and the conference closed after a resolution had been unanimously adopted to the effect that a committee should be appointed by the chairman, Dr. W. S. Thayer, to consider the problems involving in reconciling the views of practitioners of medicine and those of the sponsors of health demonstrations and other socio-medical and medico-economic experiments.

AMERICAN MEDICAL ASSOCIATION

Council on Pharmacy and Chemistry

Editor New England Journal of Medicine:

In addition to the articles enumerated in our letter of February 25, the following have been accepted:

Adohr Creamery Co.

B. Acidophilus Milk—Adohr.

Parke, Davis & Co.

Solution Ephedrine Sulphate—P. D. & Co., 3 per cent.

Yours truly,

W. A. Puckner, *Secretary.*

Council on Pharmacy and Chemistry.

NEWS ITEMS

A LARGER SEAL SALE—The Christmas Seal Sale conducted by the Boston Tuberculosis Association netted $54,600 which is the largest amount ever received by this Association.

The Association is planning to care for more children at the Prendergast Preventorium.

THE NOMINATION OF DR. JAMES H. WALSH—Governor Fuller has sent the nomination of Dr. James H. Walsh of Fall River as Associate Medical Examiner to the Council to fill the position made vacant by the promotion of Dr. F. R. Barnes to the position of Medical Examiner.

NOTICE

Professor Bruno Bloch, Director of the Dermatological Clinic, University of Zurich at Strasbourg, will lecture at the Harvard Medical School at 5 P. M. Monday, April 16. His subject will be "Formation of Pigment in the Skin".

REPORTS AND NOTICES OF MEETINGS

MASSACHUSETTS GENERAL HOSPITAL

A Clinical Meeting of the Staff of the Massachusetts General Hospital will be held in the Administration Building, Fruit Street, on Thursday, April 12, 1928, at 8:15 P. M.

PROGRAM

(1) Dr. C. A. McDonald: Demonstration of some unusual ocular manifestations of encephalitis. (2) Dr. S. Biddle: Pneumorachicentesis, with demonstration of X-Ray plates. (3) Dr. George Clymer: Local fat atrophy following insulin injection. (4) Dr. Jacques DeBusscher: Chlorylen therapy in trigeminal neuralgia, tics and migraine. (5) Dr. J. S. Hodgson: Chordotomy for the relief of pain. (6) Dr. W. J. Mixter: Alcohol injections in angina pectoris. (7) Dr. H. C. Solomon: Tryparsamide and malaria in the treatment of neurosyphilis. Alternate subjects: Dr. C. S. Kubik: Progressive bulbar palsy. Drs. J. B. Ayer and George Tobey: The cerebrospinal fluid in the diagnosis of lateral sinus thrombosis.

Physicians, medical students and nurses invited.

Committee on Hospital Meetings.

BOSTON MEDICAL HISTORY CLUB

The next meeting of the Boston Medical History Club will be held at the Boston Medical Library on Friday, April 13th, at 8:15 P. M. Annual meeting with election of officers.

PROGRAM

Dr. Isador Coriat: "Why Did Harvey Ascribe the Discovery of the Circulation of the Blood to Galen?"

Dr. George Sarton: "Muslim and Jewish Science."

BOSTON MEDICAL HISTORY CLUB

The Boston Medical History Club, in conjunction with the Harvard Medical Society, will meet on Tuesday, April 24th, at the Peter Bent Brigham Hospital, at 8:15 P. M.

Program—"William Harvey," by Dr. Archibald Malloch, Librarian, New York Academy of Medicine.

Physicians and medical students cordially invited to attend.

THE MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY

The one hundred and eighth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, April 13, 1928, at 8:15 P. M.

The following paper will be read: "The Results of the Use of the Calmette Tubercle Bacillus Vaccine in Infants and Animals," William H. Park, M.D., New York.

WILLIAM W. HOWELL, M.D., *President.*
RANDOLPH K. BYERS, M.D., *Secretary.*

BOSTON CITY HOSPITAL STAFF CLINICAL MEETING

Cheever Surgical Amphitheatre, Saturday, April 14, 1928, at 11 A. M.

Demonstration of cases by members of the Medical and Surgical Staff.

Discussion of the cases invited.

Physicians, medical students and nurses invited.

JOHN J. DOWLING, *Superintendent.*

SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next meeting of the South End Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, April 17, 1928, at 12 noon.

The speaker will be Dr. Elliott P. Joslin, Professor Harvard Medical School, and Physician, 81 Bay State Road, Boston. The subject will be "Treatment of Diabetes."

All physicians are cordially invited. The usual luncheon will follow.

SUFFOLK DISTRICT MEDICAL SOCIETY

BOSTON MEDICAL LIBRARY—JOHN WARE HALL

Wednesday, April 25, 1928 at 8:15 P. M.

ANNUAL MEETING

Business: Election of Officers.

Subject of the evening: "Problems of Obesity," Prof. Julius Bauer, University of Vienna, Austria. Discussion to be opened by Drs. George C. Smith, Francis H. McCrudden and James P. O'Hare.

Dr. Bauer is Professor of Medicine in the University of Vienna. Since the beginning of his career at the University of Innsbruck he has continued studies on the relation between constitution and disease. His outstanding achievement is raising the interest of physicians to appreciate the significance of constitution in disease. In this line of work he is unquestionably the most prominent man on the continent.

Light refreshments after the meeting.

ELLIOTT P. JOSLIN, M.D., *President.*
ARTHUR H. CROSBIE, M.D., *Secretary.*

MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter, consisting of Internists, Pathologists, Radiologists, etc., as well as Surgeons, will hold their 5th annual Conference on Goiter, in Denver, Colorado, June 18th, 19th and 20th.

Several men from foreign countries have signified their intention of attending. Professor Breitner of the Von Eiselberg Clinic, Vienna and Professor Albert Kocher of Berne, Switzerland, have accepted places upon the programme.

Addresses and discussions on Prophylaxis, Medical Treatment, Endemic Goiter and Cretinism from the Public Health Standpoint, are on the programme for the first afternoon.

Pathology, various phases of Surgical Treatment, etc., will be considered the last two afternoons.

All members of State Medical Societies are invited to attend.

Dr. Gordon S. Fahrni of Winnipeg, Canada, is the President and Dr. Kerwin Kinard of Kansas City, is Vice President.

NEW ENGLAND ASSOCIATION FOR PHYSICAL THERAPEUTICS

The next regular meeting of the New England Association for Physical Therapeutics will be held at the Boston Square and Compass Club, 448 Beacon Street, Boston, Mass., April 18, 1928.

Dr. Reginald Fitz of Harvard will read a paper on "Arterio sclerosis".

Dr. John P. Sutherland of Boston University, will read a paper on "Cardio renal Disease as influenced by High Frequency Saturation, Shown by Basal Metabolism".

The discussion will be opened by Dr. Wm. Duncan Reid, and Dr. Arthur H. Ring.

A table d'hote dinner will be served at 6:30 p. m., at the regular price. All regular physicians are welcome.

G. W. DICKENSON, M.D., *Sec'y,*
89 Somerset St., Winthrop.
CLAUDE L. PAYZANT, M.D., *Pres.,*
76 Boston Ave., W. Medford.

SUFFOLK DISTRICT MEDICAL SOCIETY

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 3, 1928, at 4.00 o'clock.

Candidates should make personal application to the

Secretary, and present their medical diploma at least one week before the examination.

ARTHUR H. CROSBIE, M.D., *Secretary.*
520 Commonwealth Ave., Boston.

SOCIETY MEETINGS

April 12—Massachusetts General Hospital Staff meeting. Complete notice appears on page 424.

April 13—Boston Medical History Club. See page 425 for complete notice.

April 13—Meeting of the New England Pediatric Society. Detailed notice appears on page 376, issue of April 5.

April 14—Blizzard Class Reunion. Complete notice appears on page 375, issue of April 5.

April 14—Boston City Hospital, Staff Clinical Meeting. Detailed notice appears on page 425.

April 17—South End Neighborhood Club. Detailed notice appears on page 425.

April 18—New England Association for Physical Therapeutics. See page 425.

April 20—Massachusetts Psychiatric Society. For detailed notice see page 376, issue of April 5.

April 24—Lawrence Cancer Clinic. See page 376, issue of April 5, for complete notice.

April 24—Boston Medical History Club. For complete notice see page 425.

June 18-20—Meeting of the American Association for the Study of Goiter. See page 425 for complete notice.

June 18-22—Convention of the Catholic Hospital Association. Complete notice appears on page 1597, issue of February 16.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 2, 1928 (Wednesday)—Annual meeting at Haverhill, 12:30 P. M., at the Haverhill Country Club, Brickett Hill, Gile Street, Haverhill.

May 3, 1928 (Thursday)—Censors meet for examination of candidates at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. Candidates should apply to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence, at least one week prior.

Essex South District Medical Society

May 3 (Thursday)—Censors meet at Salem Hospital for the examination of candidates at 3:30 P. M. Candidates should apply to the Secretary, Dr. R. E. Stone, Beverly, at least one week prior.

May 8 (Tuesday)—Annual meeting. Detailed notice appears on page 1437, issue of January 26.

Norfolk District Medical Society

May 3—Censors' meeting. Roxbury Masonic Temple, 4 P. M. Applications will be mailed by the Secretary upon request. Detailed notice appears on page 271, issue of March 22.

May 8—Annual meeting. Details to be announced.

Suffolk District Medical Society

Combined meeting of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 8 The Fenway, at 8:15 P. M., as follows:

April 25—Annual meeting. Election of officers.

Subject of the evening: "Problems of Obesity," Professor Julius Bauer, University of Vienna, Austria.

Discussion to be opened by Drs. George C. Smith, Francis H. McCrudden and James P. O'Hare.

Dr. Bauer is Professor of Medicine in the University of Vienna. Since the beginning of his career at the University of Innsbruck he has continued studies on the relation between constitution and disease. His outstanding achievement is raising the interest of physicians to appreciate the significance of constitution in disease. In this line of work he is unquestionably the most prominent man on the continent.

Light refreshments after the meeting.

The medical profession is cordially invited to attend this meeting.

May 3—Censors' Meeting. See page 425 for complete notice.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

A HOME FOR THE MASSACHUSETTS MEDICAL SOCIETY

UNDER the inspiration of Dr. Birnie, the President of the Society, a Committee is at work which hopes to provide adequate headquarters for the varied activities of the Society. The Council at its last meeting approved the plan and authorized the formation of this Committee.

The growth of the JOURNAL alone demands quarters more adequate than those at present available. But of recent years the other functions of the Society have without attracting particular notice increased many fold. If the Society is to fulfill its duty to the Commonwealth it must still further increase its activities. If it is to carry out its obligations to its members it must serve in many ways now inadequately undertaken. If it is to ally itself with other organizations working for similar objects a common meeting ground is essential for community of interest.

Of these allied organizations the Boston Medical Library first comes to mind. It is reaching out and endeavoring to broaden its work in order to be of more service to every physician in the State and in New England. The Society and the Library are both endeavoring to extend their activities. They are coöperating. A great medical centre which shall include the Library, the Society, and all coördinating organizations attempting to aid the medical and health interests of New England is the dream of those who as a step toward that end look now to the fellows of the Massachusetts Medical Society for funds to provide a home for themselves and the activities of their representatives.

The time is at hand when the medical interests of New England may properly combine in building a strong united organization if this section of the country is to maintain the traditions of the past.

The first effective step may be taken in this plan of the President of the Massachusetts Medical Society to create a home in which the work of the Society may be carried on effectively and with efficient organization may be in a position to aid in other plans.

It must be clearly understood that progress can be made only when we are ready to meet the demands. This means contribution of the time and material resources of every member of the Society according to his means.

BOOK REVIEW

Pendulum-Baby's Health Day by Day—published by the Professional Press, Inc., 17 N. Wabash avenue, Chicago.

This book is simply a day by day and week by week outline of the infant's progress—a record book of the individual infant to be used in the home. A brief appendix devotes a few pages to infant hygiene, first aid and food preparation. It is difficult to imagine the average busy mother taking the time to keep this detailed daily log of her infant's feedings, hour of sleep and recreation, hygiene, etc.